

RADIO CONTROL

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car action

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

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TOOLS
YOU NEED
NOW**

OUTRAGEDOUS!

3 TOTALLY
TRICK
TRUCKS

TEAM LOSI

XXX5

Next World Champ?

HOW TO

Traxxas
EZ-Start Tune-Up
Pro Battery Care

TESTED

OFNA Hyper 7 Pro

We test OFNA's glamour buggy

Kyosho KX-One

The other one-belt racer

Nuova Faor SF501 Motorcycle

Half the wheels—twice the skill



OCTOBER 2001

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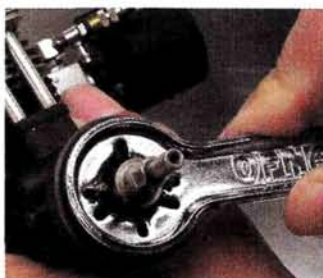
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Everyone who
saw us said
"Nice costumes!"
Our response:
"Costumes?"

It Must be the Money

Don't believe for one second that you can't buy happiness. Hey, I'm not saying you can always buy happiness, but for the most part, you can. The question is, how much are you going to spend for it, and how happy are you going to be? I know all of you would be psyched to have any one of the three trucks we built for the Mega-Buck Trucks feature in this issue, and that many of you have built your own wallet-busting dream machines. I also know the bewilderment you were probably met with when you told the uninitiated just how many presidential portraits you parted with to realize your RC dreams.

The first reaction is usually the real-car comparison; you know—"You could have bought a real car for all that money!" True; you could have bought a really cruddy used car with that money. Surely owning a decade-old ozone depleter that marks its territory with a puddle of oil at each stop would give you a greater sense of pride and satisfaction than building a tricked-out T-Maxx ever could—and let's not even talk about which would be more fun to drive!

In another vehicular vein, there are the guys who own exorbitantly expensive toys but who just can't wrap their heads around a hobby involving something they can't actually ride on. How is it that a \$5,000 Jet Ski (sorry, "personal watercraft") that can be enjoyed only 3 months out of the year—on weekends—after trailering it for an hour on the highway—makes sense, but owning an RC car does not?

I particularly enjoy the disbelief that we could spend even \$100 on an RC car that's expressed by anyone who has a cigarette dangling from his lower lip. There's a great way to spend at least \$1,000 a year, all for the coolness that comes with being unhealthy and the fun of having a habit you wish you could quit. Sweet!

Ultimately, I just feel bad for those poor souls who don't "get" RC. Sure, the cars and the gear are cool, but the value of our amazing hobby goes far beyond the physical stuff you get for your money. When I think about the kits, tools, parts and accessories I've bought and enjoyed over the years, I realize that what I really paid for were the countless hours of pleasure and challenge and satisfaction that I've had with them. Do the math on that, and you'll see that the RC car hobby's cost is absurdly low.

See you next time,

Peter Vieira
Executive Editor

RADIO CONTROL car action

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The Great Servo Mystery

I bought a Factory Team TC3 Racer with my graduation money. Everything has gone together quite well, and I really like the directions; they're so good that even a 14-year-old novice like me can put it together flawlessly—so far! I seem to have hit a dead end. The directions refer to a chart that shows which servo arm and spacers to use for Airtronics, Futaba, Hitec, JR and KO Propo servos. That's great, but I have a Traxxas servo. Could you guys tell me which arm and spacers I should use? [email] MATT

You got money for graduating from junior high? Do your parents pay you for dressing yourself? This is for all you guys who are transferring Traxxas gear to kit cars: use the servo horn meant for Futaba servos. Both brands use 25-spline output shafts (KO, JR and Airtronics servos have 23-spline shafts; Hitec's shafts have 24 splines). Likewise, you can use whichever mounts and spacers are suggested for Futaba S3003 and S148 servos, as Traxxas' 2018 "standard" servo has the same dimensions. —Pete

Yeah, but do you remember the Monogram Lightning?

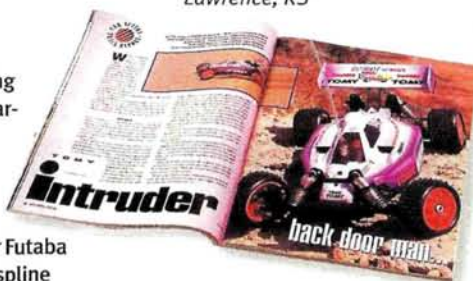
Hey, I have an RC history challenge for you guys at *RC Car Action*. The next time you do an article about the history of RC, try doing it about cars that came and went in a flash without many people remembering them.

I have a perfect example of this: do any of you remember the Tomy Intruder 4WD buggy from the January '93 issue? At the time,

it was so amazing because it was a serious racing buggy made by a "toy" company. It was also amazing because it had a really good-looking chassis and an even better body. I hope you guys can remember the car, because at my local track, I'm the only one who can, and I know that I'm not crazy—well, I'm reasonably sure—and that the car did exist!

There must be others like me who remember cars that almost no one does. So help us out and do an article about these long-lost cars. Thanks for listening.

GREG CRESWELL
Lawrence, KS



Greg, why do you doubt me? Of course I remember the Tomy Intruder! Tomy also offered a really trick RC robot kit at about the same time. But if you want to talk about really obscure kits, take the way-back machine to 1986, when *Radio Control Car Action* issue number 1 rolled onto newsstands. Back then, the market was flooded with me-too RC kits from manufacturers looking to cash in on the exploding RC scene. Tamiya knock-offs were common, and countless wacky designs were marketed: four-wheel steering, inboard air shocks, onboard oiling systems, chain drive—crazy stuff! If any of you readers have vintage cars in good shape that you think we should feature, email me at peter@airage.com.

—Pete

Sir Breakalot

I am writing to protest the Associated TC3's being chosen as "2001 Car of the Year." I had one, and it never finished a race. I broke every part in the front end and most of the parts in the rear. When I wrote to the people at Team Associated, they told me: "If you hit anything with enough force, it will break."

I have been racing for 12 years, and I have never had a car break so much. In the month or so I raced my TC3, I never finished a heat, let alone a race. I tried the graphite arms, and they broke just as quickly as the stock ones. [email] MATTHEW PARKINSON

I get letters like this all the time, but the car in question always varies. I'm sure the Associated guys aren't thrilled that I'm printing the letter that drills the TC3, but they won "Car of the Year," so they'll get over it! I have a theory: some people and some cars just don't mix. The TC3 may be the right car for a lot of people, but it obviously doesn't suit your (brutal?) driving style. It holds up great for most of us, but the special way you hit the boards is just the way that will break a TC3. And Associated is right: if you hit anything with enough force, it will break, no matter what its brand name. All RC cars have their limits. And as anyone who races will tell you, those limits are often absurdly high. I'm surprised more cars don't break more parts more often.

One more thing: graphite-plastic parts are meant to be lighter and stiffer, but they are not always stronger in the "won't break" sense. Because graphite parts don't flex, they are sometimes more likely to break in certain types of crashes.

—Pete

Goof Patrol

On Page 36 of the August issue, you list the website for the Xtreme Tune N' Tote as www.extremeengineering.com when it should be www.xtremeengineering.com—



small difference, but the product caught my eye, and I eventually figured it was "Xtreme" from the picture. Great mag; keep it up! [email] ILV2XLR8

We had an error on the address, too; Xtreme Engineering is at 28774 State Hwy. 43, Detroit Lakes, MN 56501. Xtreme also offers a benchtop model of the Tune N' Tote; check it out. —Pete

I noticed some weird stuff happening in the "Comp Charts." In the June issue, the street price of the Schumacher Axis 2 was listed as \$319, and in July, it was \$359. I just bought the car from a hobby shop for \$219, and the kit included aluminum shock bodies. Also, the Corally C4 seems way overpriced at over \$500. [email] RUSS TYLER

Russ, since we are infallible, the hobby shop must have made a mistake; march in there and give them another 100 bucks! Seriously: it was just a goof. The correct street price for the Axis, with aluminum shocks, is \$220, and the Corally goes for \$360—more or less, depending on where you buy it. —Pete

YOU SAID IT

I started doing the math

I was bored the other day when my friend started talking about how pistons and sleeves don't last more than 6 gallons on average. I started doing the math, and here is what I came up with: if an engine averages 25,000rpm and you multiply that by 6 (for a 6-minute run on a 75cc tank), you get 150,000 revolutions per tank of fuel. At 75cc per full tank, a gallon of fuel will last for 50.5 fill-ups, so that means the piston passes through the cylinder 7,575,000 times per gallon. Now multiply that by 6 gallons of fuel, and you get 45,450,000 passes through the cylinder. I give my engine more credit. [email] NICK GIGANTE

Look, I'm not some brainiac loser who thinks every single thing in life should be educational (insert George W. Bush gag here), but I do think the lessons RC teaches in physics, math and geometry—without hitting you over the head—are part of the hobby's tremendous appeal. Now here's your "You Said It" prize: a jug of Trinity fuel.



WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

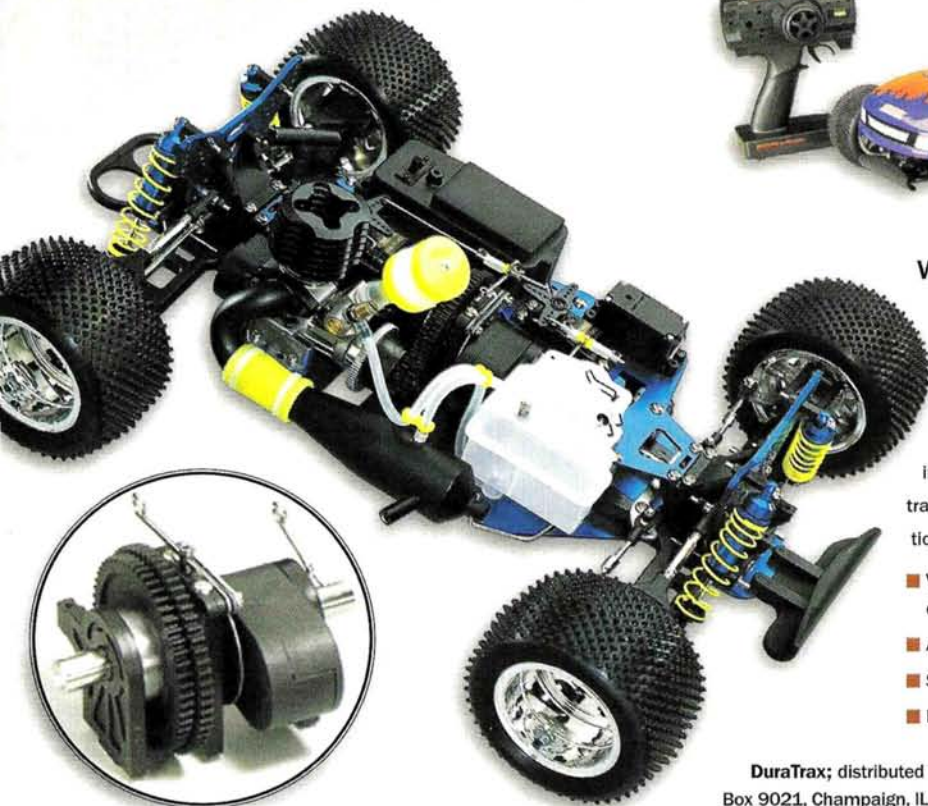
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BY CHRIS
CHIANELLI

DuraTrax Shifts into Overdrive

DURATRAX OVERDRIVE ST



Who knew DuraTrax truck had a 4WD, 2-speed and reverse-equipped stadium truck in the works? Not me. The Overdrive will roll out of the box with your choice of six color combos controlled by a 3-channel transmitter that Futaba makes especially for DuraTrax. With the exception of fuel, everything you'll need to run the Overdrive is included, right down to a fuel bottle, double-A batts for the transmitter, a glow starter and a tuning video. And did I mention this other stuff?

- Velocity .17 pull-start engine
- Aluminum tuned pipe
- Servo-operated reverse
- Ball-bearing everything
- Threaded-body shocks
- Metal brake disc
- 6061 T-6 anodized-aluminum chassis and shock towers

DuraTrax; distributed by Great Planes Model Distributors, 2904 Research Rd., P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; www.duratrax.com.

CHEAP SPEED!

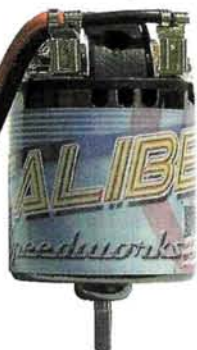
TRINITY CALIBER MODIFIED MOTORS

I don't usually quote ad copy, but I thought Trinity's tag line for the Caliber motors, "The perfect motor to replace the slow one that came with your first RC car" was so perfect that I just had to repeat it. For about the price of two



large pizzas, a Caliber mod includes gold motor connectors (no need to solder; just plug the motor in), dual ball bearings, installed capacitors, long-wearing hard-copper brushes and a torquey full-rotor armature. And the winds? Even the "mildest" Caliber, a 16-turn double, will seem like rocket power compared with the plain-Jane 540 that your kit came with, and the 14-, 12- and 10-double winds get even faster as the winds get lower.

Trinity Products Inc., 36 Meridian Rd., Edison, NJ 08820; (732) 635-1600; www.teamtrinity.com.



Open Box, add Fuel

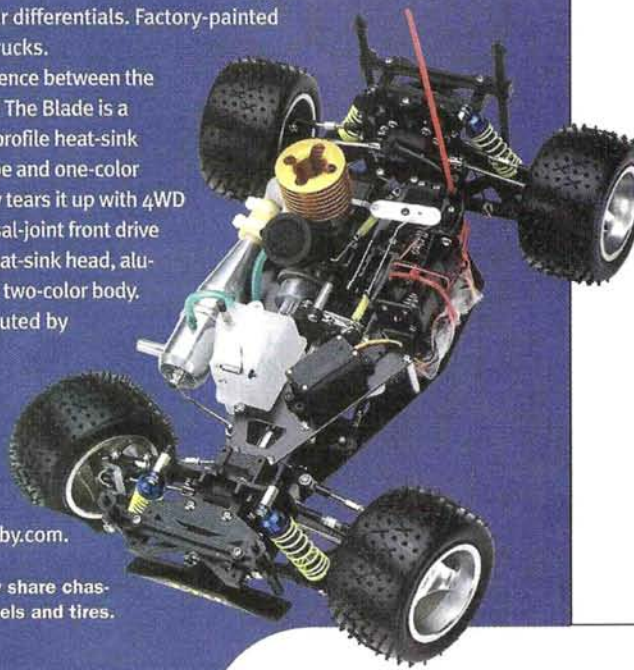
XTM Baja Blade and Baja Outlaw RTR Trucks

XTM Racing is the latest to jump into the hot-as-a-solar-flare nitro RTR truck scene, with two new machines. Both Baja nitro trucks feature pull-start XTM 15 engines and Hitec Lynx Sport radios, plus full ball bearings, fiber brake discs, steel turnbuckles, chrome wheels, and heavy-duty metal-gear differentials. Factory-painted bodies finish off the trucks.

So what's the difference between the Blade and the Outlaw? The Blade is a 2WD truck with a low-profile heat-sink head, plastic tuned pipe and one-color body, while the Outlaw tears it up with 4WD (complete with universal-joint front drive shafts), a machined heat-sink head, aluminum tuned pipe and two-color body.

XTM Racing; distributed by Global Hobby Distributors, 18480 Bandilier Cir., Fountain Valley, CA 92728; (714) 964-0827; <http://xtm.globalhobby.com>.

The Blade and Outlaw share chassis, suspensions, wheels and tires.



Now Brainier! MRC Super Brain 959

The latest Super Brain is still inexpensive and reliable, but it brings new features and adjustability to the mix. For starters, it can handle Ni-Cd and NiMH batteries (3- to 8-cell, AA sub-C packs) and even has a single-cell mode (great for glow starters). The 959 also features an LCD display with readouts for battery status, battery voltage, charge current, charging time in minutes and delta peak voltage threshold in millivolts (mV). The Super Brain 959 can be set to charge at 0.5 amp to 4.5 amps (in 0.5-amp increments), and the voltage threshold can be adjusted from 5 to 50 millivolts.

Model Rectifier Corp. (MRC), 80 Newfield Ave., Edison, NJ 08818-6312; (732) 225-6360; www.modelrec.com.



YOU TOOK THE TRANSPONDER HOME? NO PROBLEM! KO TESTS ARC LAP-COUNTING SYSTEM

KO IS ALMOST READY TO RELEASE ITS ARC LAP-COUNTING SYSTEM. The new system uses small amplifiers called "TD-1 units" that are installed in each car like a transponder. The TD-1 unit has a patch cord that plugs into one of the available channels on the receiver. Once installed, the TD-1 unit broadcasts each car's signal and registers a lap every time one of the cars passes the timing loop. The TD-1 units are half the size and weight of an AMB transponder, but they fit all existing transponder mounts (as you can see from the photo).

Here's the really cool part. Racers will buy their own personal TD-1s (price?—about \$6) and keep it installed on their vehicles so they won't have to check out a TD-1 unit before each race and turn it back in afterward. The KO ARC system will include 20 TD-1 units and special practice race software to get track operators started right away. The ARC system

is compatible with all existing race-management software and can be connected to any type of existing wire loop for those who are looking to upgrade their current systems. The KO ARC system should carry a street price of around \$1,600, which is about half the price of the current multi-car lap-counting systems.

KO Propo USA Inc., 16012 South Western Ave., Ste. 308, Gardena, CA 90247; (310) 532-9355; info@kopropo.com; www.kopropo.co.uk.

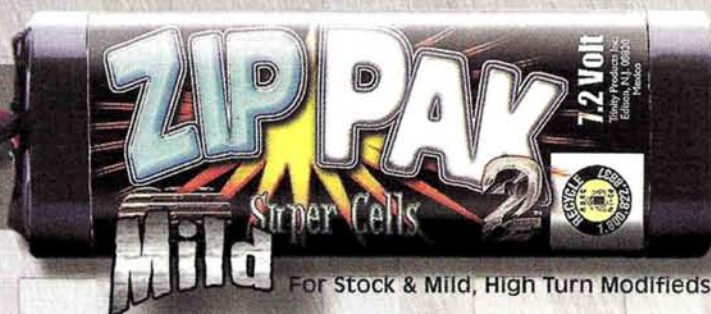


The TD-1 unit is half the size and weight of an AMB transponder but it fits in the same place.

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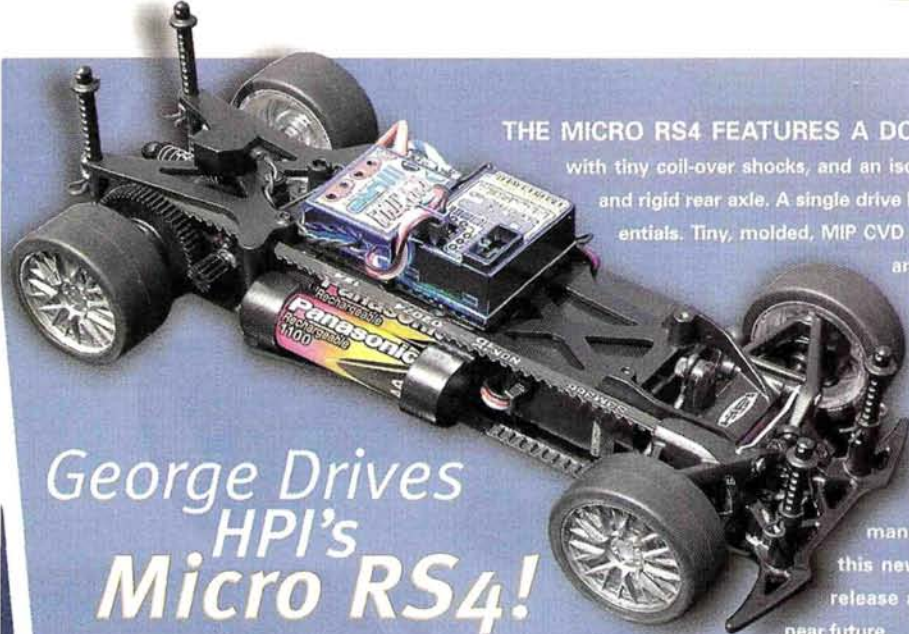
RC5900
\$34.99

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AMAZING!

www.teamtrinity.com



THE MICRO RS4 FEATURES A DOUBLE-WISHBONE FRONT SUSPENSION

with tiny coil-over shocks, and an isolated rear motor pod with a single coil-spring shock and rigid rear axle. A single drive belt sends the 4WD power to the front and rear differentials. Tiny, molded, MIP CVD axles, get their spin from a pan-car style rear ball diff and front gear diff. The chassis accommodates standard size electronics, and power comes from 4, AA or AAA Ni-Cd, NiMH, or alkaline batteries. Rubber tires with foam inserts provide the traction, and the rear wheels may be adjusted to provide two rear widths.

The Micro RS4 kits should sell for slightly more than \$100 and will be offered with a variety of highly detailed bodies, including the Viper shown here. Expect

many factory hop-ups to support this new car line, and HPI may even release a ready-to-run version in the near future.

George Drives HPI's Micro RS4!

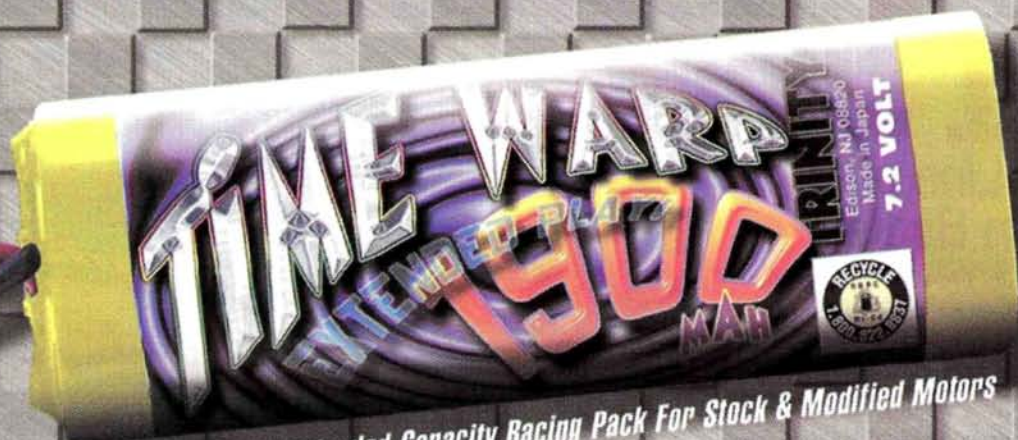
Sounds great, but how does it drive? Here's the G-Man with details from his visit to HPI's SoCal headquarters:

I drove the Micro RS4 on asphalt, carpet and a slick cement surface, and it handles just like a 1/10-scale 4WD touring car. The car drove equally well on all three surfaces, but the 4WD drifts were virtually endless on the slick concrete. The best part is that the Micro RS4 can be driven with consistency and can be dialed in to hook up on just about any surface. I think the Micro RS4 will launch an entirely new category that will make RC even more affordable while it opens the door to organized indoor racing in even the smallest shops.

HPI Racing, 15321 Barranca Pky., Irvine, CA 92618; (949) 753-1099; www.hpiracing.com.



PLUG & PLAY LONGER FOR LESS



1900 mAh Ni-Cd Extended Capacity Racing Pack For Stock & Modified Motors

RC5897. \$36.99



TEAM LOSI SEES RED! TEAM LOSI MATT FRANCIS EDITION TRIPLE-XT

MOVE OVER BRIAN, MATT FRANCIS NOW HAS A SIGNATURE TRUCK! Matt's well-known red motif visually separates his namesake ride from a standard-issue Triple-XT, and in typical signature-vehicle fashion, the Matt Francis Edition includes just about every performance upgrade part Losi offers. Here's the list:

- ◆ Graphite composite chassis and suspension components
- ◆ Hard-coated, machined-aluminum slipper shaft and top gear
- ◆ Ball-bearing steering
- ◆ Titanium-nitride-coated, gold shock shafts
- ◆ Threaded, hard-coated shock bodies with molded preload collars
- ◆ MIP CVD drive shafts
- ◆ Red-anodized-aluminum front hinge-pin brace
- ◆ Red-anodized, ball-milled motor plate
- ◆ Red-anodized front axles
- ◆ Machined-titanium turnbuckles
- ◆ New "Fury" body and Special Edition stickers
- ◆ Red aluminum rear hinge-pin brace
- ◆ Red front and rear bumpers, body mounts, wheels and rod ends

Suh-weet! The Matt Francis Edition will cost more than a standard Triple-XT (duh), but you'll save megabucks compared with the cost of buying the upgrades separately.

Team Losi; distributed by Horizon Hobby Inc., 4105 Fieldstone Rd., Champaign, IL 61822; (217) 355-9511; www.horizonhobby.com.



Clip-On Cool and Bombproof Bulkheads for Traxxas Maxx Trinity Aluminum Heat Sinks and Bulkheads for Traxxas Maxx

Trinity's trademark blue anodizing graces man-size clip-on heat sinks for your E-Maxx's big 540 motors, and with fins only slightly shorter than those of a '59 Caddy, they're sure to keep those big motors cool. Aluminum bulkheads for the Maxx have been done before, but Trinity's front and rear sets are exceptionally complete. In addition to the perfectly sculpted bulkheads, you get shims to center the diff housing, setscrew-secured hinge pins, aluminum cross-tubes and all the hardware you'll need to install the stuff.



Trinity Products Inc., 36 Meridian Rd., Edison, NJ 08820; (732) 635-1600; www.teamtrinity.com.



HORIZON MOVES MOUNTAINS

Remember Kyosho's bulldozer and dump truck from the September issue's special all-Shizuoka-show "Inside Scoop"? The super-realistic, fully functional rigs will be coming to the states, and they will be brought to you by Hobby Zone from Horizon Hobby. The vehicles will be offered fully assembled and weathered. To get yours, contact:

Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61822; (217) 355-9511; www.horizonhobby.com.

SHELL SHOCK

New Pro-Line and Protoform Bodies

Let's see ... from Pro-Line we have the 190mm Ford GT40 (only one of the coolest racecars ever), and from Protoform, we have the red-hot 2001 Honda Civic—also in 190mm. Both feature window masks and loaded decal sheets (yes, the Honda includes the VTEC decals), and complete wing mounting hardware is included.

Protoform; distributed by Pro-Line, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; www.pro-lineracing.com.

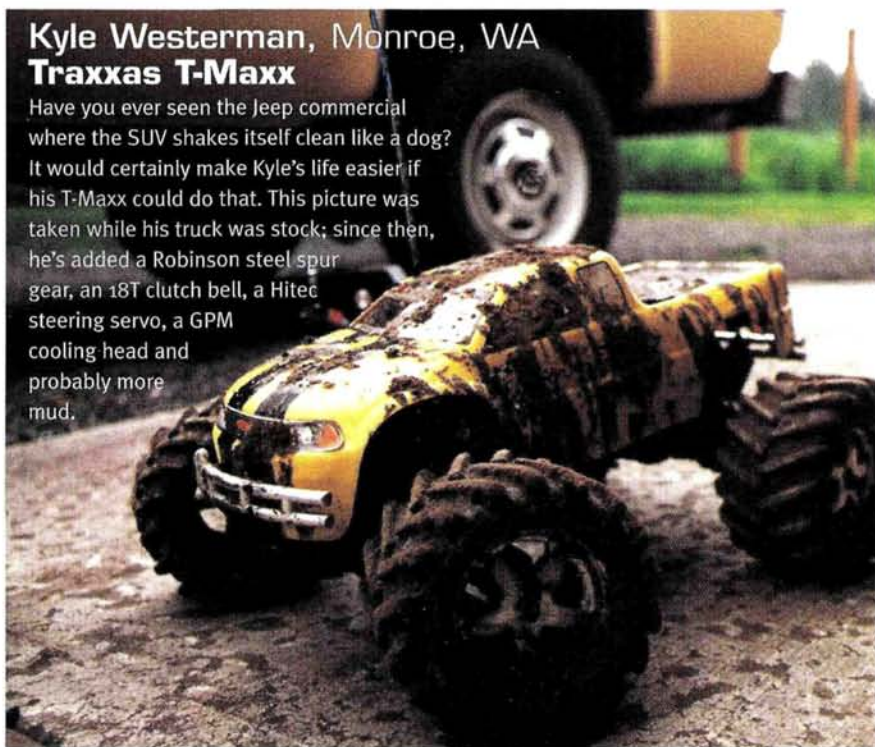


Readers' Rides

Win a one-year subscription to **Radio Control Car Action** magazine! Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

Kyle Westerman, Monroe, WA Traxxas T-Maxx

Have you ever seen the Jeep commercial where the SUV shakes itself clean like a dog? It would certainly make Kyle's life easier if his T-Maxx could do that. This picture was taken while his truck was stock; since then, he's added a Robinson steel spur gear, an 18T clutch bell, a Hitec steering servo, a GPM cooling head and probably more mud.



Chris Roberts, Stuart, FL Homebuilt Ford Taurus Micro

With some ingenuity, it's amazing what's possible. Chris created his own mini RC car by starting off with a graphite chassis plate and some 1/24-scale slot-car components. The front axles and steering were adapted from a Bolink Legend. The electronics include a Great Planes C-5 Nano ESC, Cirrus microservo, Novak AM receiver and six Sanyo 110mAh batteries.



Todd Alexander, Indianapolis, IN Team Associated TC3 Racer

This clean-looking HPI Dodge Stratus shell covers an Associated TC3 that features Futaba radio gear, a Trinity P2K motor, Novak Explorer II ESC, SMC 2400 cells and Pro-Line wheels and tires.



Casey Goldberg, Gainesville, FL Team Associated RC10B3

There's just something about the combination of this buggy's blue body, RPM wheels and big Pro-Line Road Rage tires that really makes it a hit. Casey's B3 is equipped with a Novak Super Rooster ESC and XXL receiver, Panasonic 3000 batteries, Hitec steering servo and an Aurora 10T motor.





KYOSHO
THE FINEST RADIO CONTROL MODELS

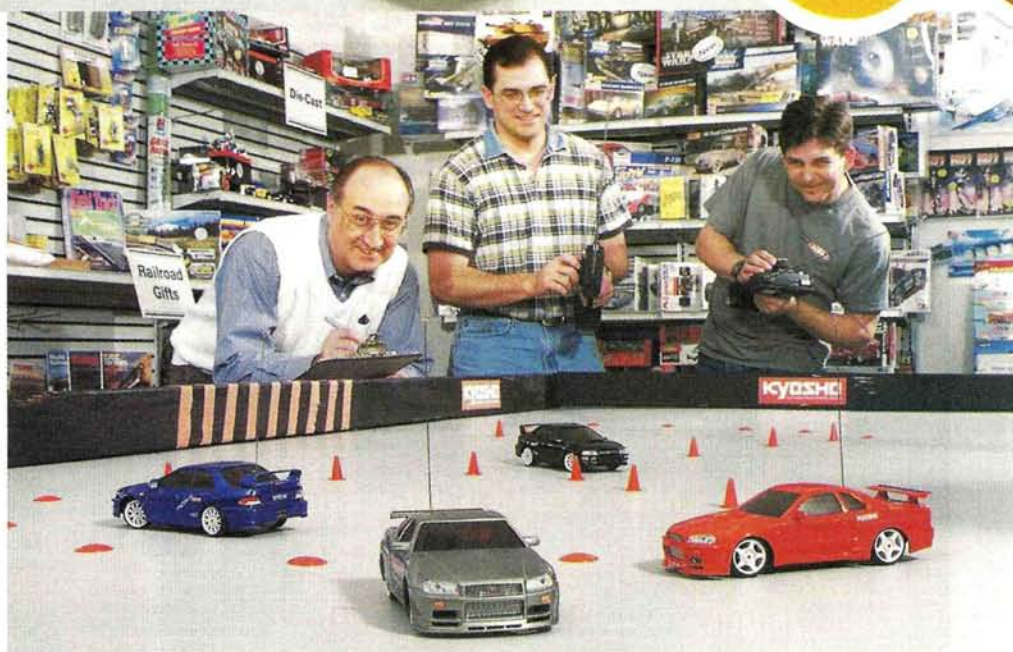
Mini-Zs:

THE NEW RAGE IN R/C RACING.

Most modelers don't want to just run their R/C cars — they want to compete. And Kyosho's Mini-Z Racers are allowing more and more hobbyists the opportunity to do just that. With the advantage of being able to race anytime, and almost anywhere.

Anything a 1:10 scale or larger on-roader can do, Mini-Zs can match. Even though they're less than 7" long, these technological marvels boast true-to-scale bodies, right down to the headlights, side-view mirrors and rear wings. And underneath those bodies is exceptionally advanced engineering that translates into realistic R/C performance — with two-wheel drive in both forward and reverse, fully proportional steering, sophisticated suspension action and more.

In addition, Mini-Z Racers arrive factory-assembled, and come with virtually everything you need to start challenging your friends



right away. The bodies are finished and painted. The chassis are equipped with a powerful electric motor. Even the electronics — including a 2-channel radio, high-frequency speed control and special miniature servo — are preinstalled and easy to operate and maintain.

Gone are the days of hoping for favorable weather to race in. Or trying to find an area large enough to accommodate several traditionally-sized cars. With Mini-Z Racers you can experience the intensity of real R/C competition in a space as little as 4' by 8'. So what are you waiting for? Check out Kyosho's lineup of Mini-Z Racers at your local hobby shop (heck, ask him to let you drive one up and down the aisle or even on the countertop), and see just how realistic — and exciting — smaller-sized R/C racing can be!

MINI-Z RACERS ARE DEFINITELY NOT TOYS!



They boast performance features such as:

- A coil-over spring shock on the front upper A-arm for realistic suspension action.
- High-grip rubber slick tires on stylish wheels.
- A specially designed mini servo that delivers fully proportional steering, even at low speeds.
- A rear T-bar that adjusts the wheelbase and provides maximum traction, even on uneven surfaces.
- An FA-130 electric motor with adjustable mounting positions to increase traction or add stability.



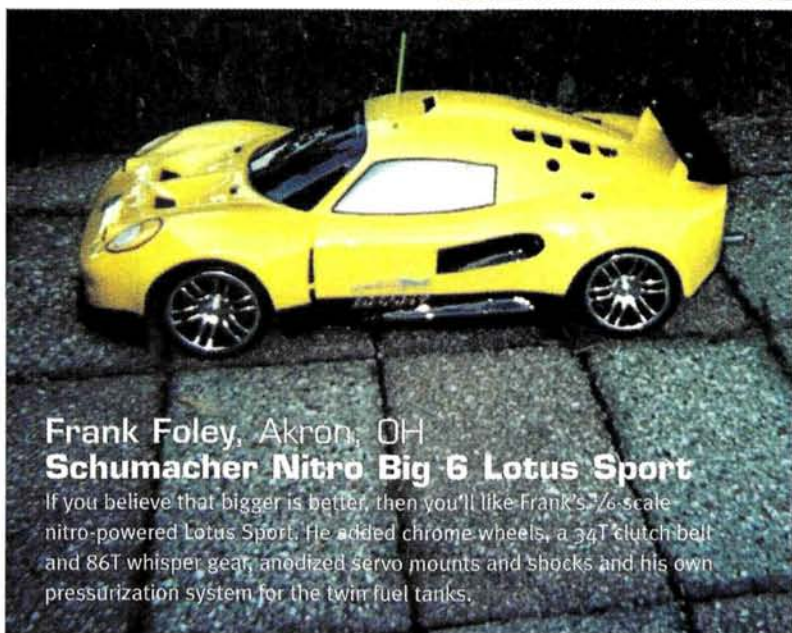
Kyosho has many optional parts available for making your Mini-Z model a really competitive racer. Other manufacturers have started coming out with hop-ups for Mini-Zs as well.

For more information, and the location of the Kyosho dealer nearest you, visit our web site at: www.kyosho.com or call 1-800-682-8948 and mention code number 0839E.

Readers' Rides

Kevin Stanley, Melbourne, FL Traxxas T-Maxx

What do you do when you want dish-type wheels for your T-Maxx but nobody makes them? Kevin made his own. His flamed T-Maxx has a lot of personal touches such as the top wing and the grill guard. His list of hop-ups includes Trinity shocks, MIP boost bottle, Robinson flywheel and Pro-Line Excursion body that he painted using Parma's Big Flame mask.



Frank Foley, Akron, OH Schumacher Nitro Big 6 Lotus Sport

If you believe that bigger is better, then you'll like Frank's 1/6 scale nitro-powered Lotus Sport. He added chrome wheels, a 34T clutch belt and 86T whisper gear, anodized servo mounts and shocks and his own pressurization system for the twin fuel tanks.

Greg Molaison, Roseland, LA OFNA Monster Pirate

It's hard to believe that this is Greg's first RC effort! His Monster Pirate has an OFNA Picco .21 engine, a JR XR3 radio, an Airtronics high-torque steering servo, and the body is painted fluorescent yellow, candy grape, metallic black and pearl white. We can only imagine what his second RC vehicle will look like!



Chad Gist, Ankeny, IA Team Losi Double-X4, Triple-X and Triple-XT

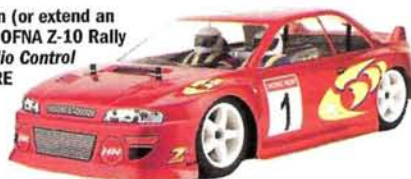
If you want to let everyone at the track know who's coming up behind them, try adopting a unique "team" paint scheme like Chad did. His trio of off-road Losi racers appears regularly at his local track in Iowa. ■

Pit Tips

ILLUSTRATIONS BY
DAVID BAKER

WIN AN OFNA Z-10 RALLY!

Radio Control Car Action will give a 6-month subscription (or extend an existing subscription) to the author of each idea used in "Pit Tips." "Top Tip" winners will receive an OFNA Z-10 Rally kit. All published "Pit Tip" authors win an OFNA yo-yo. Send a rough sketch to Bob Hastings, c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one nor return unused material.

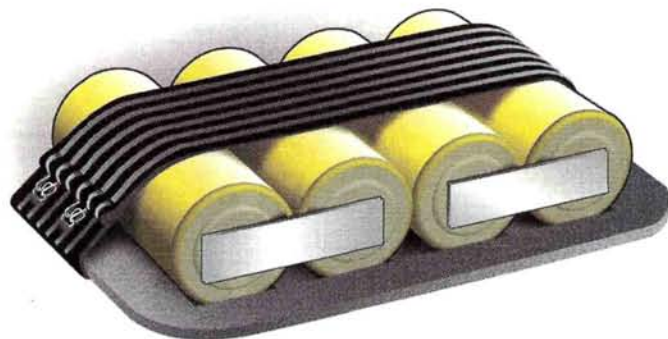


Temp-Gun Alignment

It's great to use an infrared temperature gun to monitor your nitro engine, as long as you get an accurate reading. To help align the gun properly in the cooling head, try affixing a tapered red seal like the ones on bottles of Prather after-run oil to the front of the temp gun.

The readings are not altered by this addition, and it allows you to aim the gun quickly.

EVAN ECKERT
Palm Harbor, FL



Stretch Strap

Stretch straps are an excellent way to secure your batteries to your on-road chassis. You can buy elastic straps like these at fabric stores and secure them with standard sewing clasps. They're available in many colors to match your car, too.

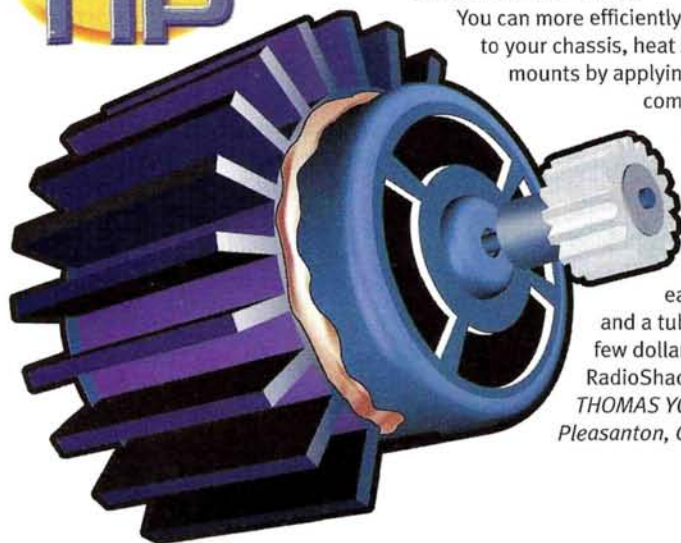
R.J. THOMAS
San Carlos, CA

TOP TIP

Heat Reduction

You can more efficiently dissipate heat to your chassis, heat sinks and mounts by applying heat-sink compound at the motor- and engine-mounting points. The paste-like compound is easy to apply, and a tube costs only a few dollars at RadioShack.

THOMAS YOUNG
Pleasanton, CA

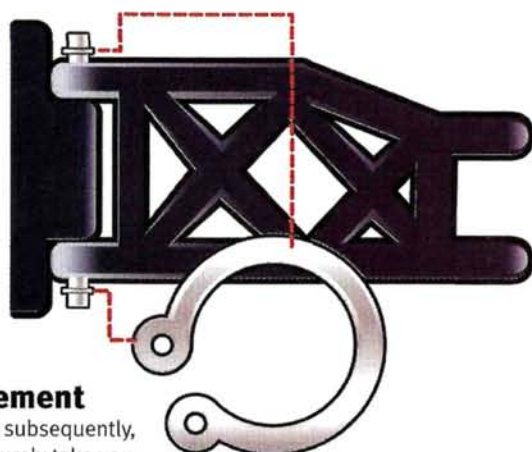


Shock-Cap Coupler

Stripped or weak threads in your shock cap may cause the damper to separate unexpectedly. You can temporarily repair this using an automotive hose clamp around the area where the cap meets the shock body.

ANDREW CLARK
Allen, TX

Pit Tips



E-Clip Replacement

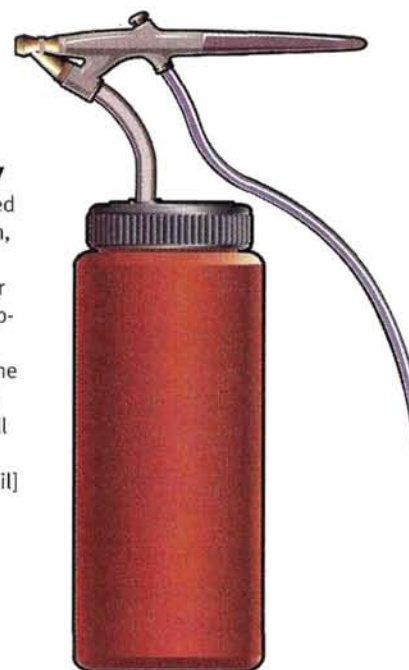
Losing an E-clip—and subsequently, your hinge pin—will surely take you out of a race. If you want to switch to something more secure, try automotive snap rings. It will mean investing in special pliers, but it may also mean the difference between ending up on the podium or back in the pits.

GLENN HART

Pleasant View, UT

Water Supply

If you use water-based paint in your airbrush, keep one of those sport bottles of water (the ones with the flip-up straws) at your workbench. Modify the straw to fit inside the bottle inlet, and you'll never have to get up for water again. [email] BEN BRODERICK

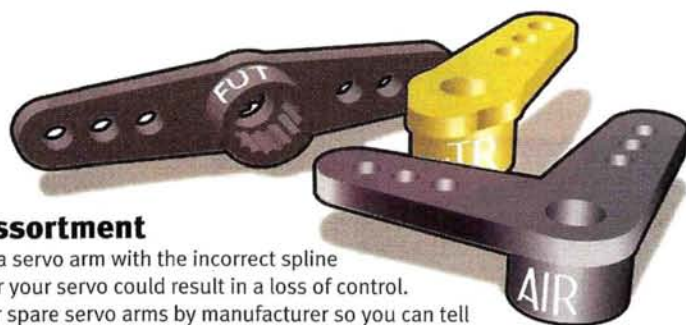


Mini Car Track

The popularity of mini RC cars makes them a natural for indoor racing. You can create a nice track by simply using a garden hose to establish the barriers. The hose is soft enough to protect the RC cars from damage, and walls and furnishings will be protected, too.

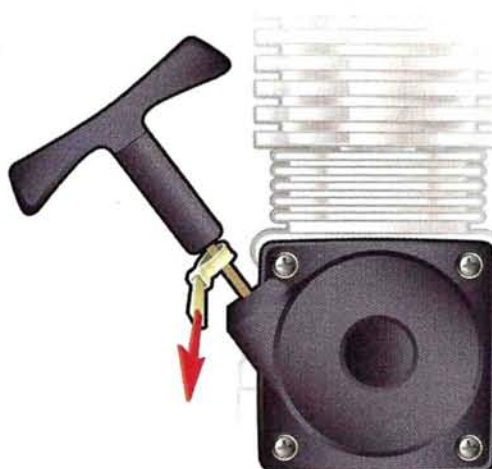
CHRIS BRAUCKMULLER

Dunnellon, FL



Arm Assortment

Installing a servo arm with the incorrect spline pattern for your servo could result in a loss of control. Label your spare servo arms by manufacturer so you can tell at a glance which is the correct one in your toolbox. [email] BENNY GETZ



Recoil Retainer

If the knot in your pull-start handle ever comes undone, the cord will rewind back into the recoil housing, and you'll have to remove the starter assembly to repair it. Before this ever happens, install a zip-tie below the handle; it will prevent the cord from recoiling further.

TIM WILSON

Depew, NY

Troubleshooting

BY GEORGE M. GONZALEZ

Gear Grinder

I own a Traxxas Stampede that's equipped with a Trinity Chameleon motor and a Tekin Rebel ESC. I've been playing around with this truck for about a year, but it recently started to whine and screech whenever I send it up a steep hill or land it hard off a monster jump. When I removed the gear cover to inspect the tranny, I found that the pinion gear had chewed a few teeth off the spur gear. I thought that it might be a one-time problem, so I simply replaced the spur gear. Well, I've stripped four more spur gears since then, and now I'm starting to think that there's something seriously wrong with my truck. I hope you can help me figure out what's wrong because I am trying to save up for a new E-Maxx, and I can't afford to keep buying spur gears. By the way, your magazine rocks!

PERRY ASTON
Oakdale, PA

The 19-turn Chameleon motor may be "mild" as far as modified motors go, but it produces greater rpm than the stock Stinger motor, and this means a slightly lower gear ratio is required to safely run the motor without its overheating. Unfortunately, the Stampede's plastic motor mount can soften from excessive heat, and this can cause the gear mesh to shift during an impact. Install a 16-tooth, 48-pitch pinion gear, which has 2 fewer teeth than the stock pinion gear. The lower final gear ratio should allow the motor to run a little cooler.

You didn't mention whether your truck is equipped with a slipper clutch. The latest Stampedes to roll off the Traxxas assembly line are

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at *Radio Control Car Action*, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to *Troubleshooting, Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.



A slipper clutch helps protect driveline components from excessive shock.



equipped with slipper-clutch mechanisms; however, older production models did not include standard slipper clutches. The slipper clutch plays a vital role in protecting the transmission (and spur gear) from the trauma associated with landing off jumps under power and slamming the truck into reverse. If your truck does not have a slipper clutch, I suggest you install one. Traxxas offers a slipper-clutch set (part no. 4615) that has everything you'll need in one handy package. Gearing down slightly and installing a slipper clutch should solve your problems for good.

New Traxxas Aluminum Shock Components Work With Your Stock Parts!

T-Maxx Blue Shock Bodies



CNC machined, blue anodized aluminum shock bodies, sold in pairs. RRP \$511

Blue Lower Spring Retainers



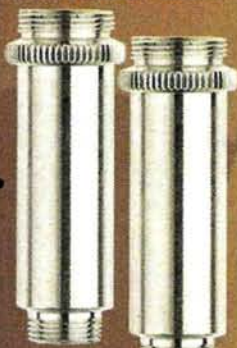
Machined, blue anodized aluminum retainers, sold in pairs. RRP \$516

Aluminum Upper Spring Retainers



Machined upper spring retainers; sold in sets of 4. RRP \$530 8mm, RRP \$520 4mm

T-Maxx Silver Shock Bodies



CNC machined, natural silver aluminum shock bodies, sold in pairs. RRP \$510

Silver Lower Spring Retainers



Machined, natural silver aluminum retainers, sold in pairs. RRP \$515

48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1418 - RRP 1428

48P / 64P SuperLite Aluminum Pinions



They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T and 64P in 24T thru 36T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

48P Hard Nickel Plated Steel Pinions



These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

Get Rid of the Gum

I have a nearly five-year-old Team Associated RC10GT with an O.S. CZ-Z .12 engine that has been in storage for several years. My wife and I were blessed with twins a few years ago, so every bit of our free time was devoted to raising our baby girls. Now that they are toddlers, I decided to get my truck running again. I installed a new glow plug in the engine and replaced the fuel line and fuel filter, just in case. I tried to start the truck, but the flywheel was so difficult to turn that the twin electric motors inside the starter box started to smoke. I decided to see whether the starter motors could spin the flywheel without the glow plug's being installed in the engine, and they could, but not without a struggle. When I rotate the flywheel by hand, the piston moves up and down OK, but it feels as if there's gum inside the engine. Is there any way to clean the inside of my engine? At this point, I'm afraid to continue because I don't want to burn out my starter box. [email]

LESLIE MARTIN

A thorough engine cleaning using denatured alcohol followed by the application of after-run oil will make your engine spin freely again.



If you leave unburned fuel inside an engine for a long time, it can cause what's known as "gumming." Basically, the fuel has dried inside your engine and has left a sticky, messy residue on the engine bearings, connecting-rod bushings, piston and sleeve.

To clean the engine, you'll need to remove the engine's heat-sink head, piston and sleeve and backplate (or pull-start mechanism, cover plate and starter shaft, if you have a pull-start engine). If you don't have the original engine instructions to guide you through the process, you'll need to pay close attention when you remove the piston and sleeve from the engine. Be certain to note how these components are installed so you can reassemble them properly later. Mark an "X" on the connecting rod with a felt-tip pen, so you'll know in which direction to reinstall it. In addition, if the sleeve is not keyed to the engine block, scribe a line on the sleeve and engine block so you'll be able to line up the piston sleeve correctly.

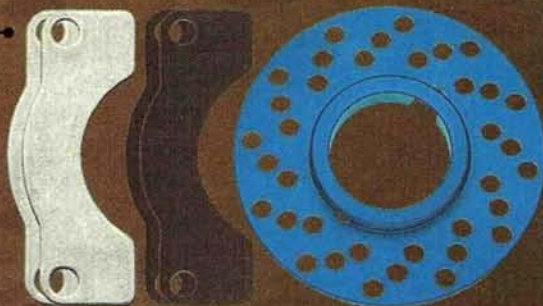
Spray denatured alcohol generously through the backplate opening and exhaust manifold. With the piston and sleeve removed, the crankshaft will be able to spin without resistance. Keep spraying alcohol inside the engine while spinning the crankshaft until the crankshaft spins smoothly without binding. Next, separate the piston and connecting rod from the sleeve, and clean these components with the alcohol, too. Apply a couple of drops of after-run oil to the piston before you slide it back into the sleeve; then reinstall the piston and sleeve on the engine. Reinstall the connecting rod on the crankshaft, and then apply a few drops of after-run oil through the backplate opening to lubricate the engine's innards. Last, secure the heat-sink head and backplate on the engine. Be sure to use the cross-pattern method of tightening the screws that secure the heat-sink head and backplate to the engine. Your engine should fire up now.

NEW T-Maxx Steel Diff Gear Set



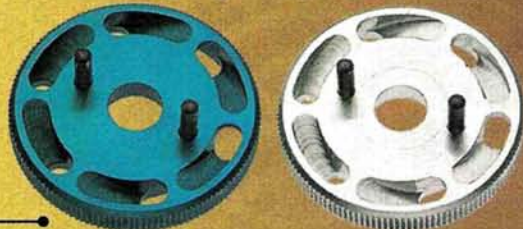
T-Maxx / E-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP \$590

NEW T-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. RRP \$560

T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP \$551 Blue, RRP \$550 Natural Silver

Hardened Steel Spur Gear With Ball Bearing



Precision CNC machined from solid steel, and then hardened, these spurs will last and last. RRP \$572 T-Maxx and Nitro Rustler, RRP \$565 Nitro Stampede

www.robinsonracing.com



ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

Troubleshooting

Too Hot to Handle

I have a DuraTrax Maximum BX buggy with the stock Torque 12 engine. My problem is that after a couple of minutes, the engine overheats and stalls out. Once it cools down, it runs fine for a couple more minutes. I've tried different fuels and different glow plugs and have reset my carb adjustments countless times. I'm sure it has to do with the glow plug's heat range, but no one can tell me which glow plug to use with this engine. Thanks for your help. [email]

ROB D.

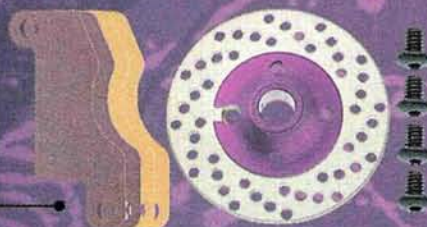
Generally speaking, the DuraTrax Torque 12 engine, like most other mid- to low-compression engines of its size, typically requires a "hotter" glow plug to operate correctly. A good replacement glow plug for your engine is an O.S. A3 or a McCoy MC59. Both of these are standard-length plugs that should work very well with your engine. You didn't mention the nitro content of the fuel you are using, but I recommend that you stick to fuels in the 10- to 20-percent-nitro range if you use these particular glow plugs.

It sounds to me as if you have your carburetor set too lean, and that is probably the reason your engine is overheating so quickly. Close the high-speed needle valve and then re-open it to $2\frac{1}{2}$ turns from fully closed. This should provide a ballpark high-speed-needle setting. Next, fire up the engine and warm it up by running the car for a couple of minutes. After the engine has warmed up, check the low-speed air/fuel-mixture needle by pinching the fuel line that feeds fuel to the carb. If the engine immediately starts to rev up, then your low-speed air/fuel mixture is set too lean. Turn the adjustment screw counterclockwise $\frac{1}{16}$ turn. Take a couple more laps, and then recheck the low-speed setting by pinching the fuel line again. Ideally, the engine should not start to rev up until the fuel line has been pinched for more than 3 seconds. Follow these tips, and your buggy should be able to run for hours without overheating.



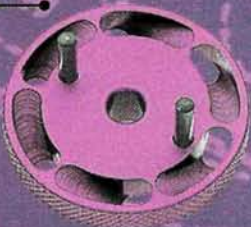
A hotter replacement glow plug such as the McCoy MC59 is ideal for the DuraTrax Torque 12 engine.

RS4 Nitro Aluminum Brake Kit



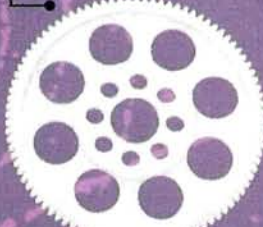
Lightweight aluminum, variable braking system. RRP 1575

RS4 Nitro Vented Flywheel



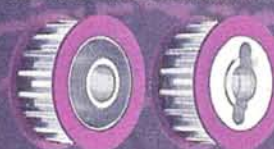
Aluminum vented flywheels move air over clutch ball, improving performance and cooling. RRP 1570 RRP 1571 Pull Start

Stealth Sedan Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any HPI electric car or truck. RRP 1860 thru RRP 1896.

RS4 Nitro Small Aluminum Drive Pulleys



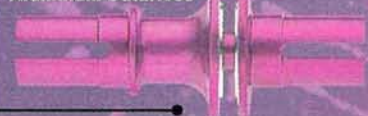
Hardened drive pulleys, sold in pairs. RRP 1538

RS4 Top Shaft Pulley



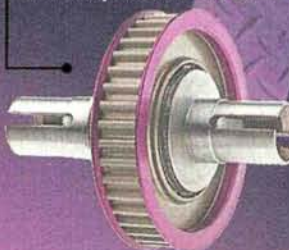
One piece pulley and shaft are precision cut and hard anodized. Purple anodized side flanges are pressed on. RRP 1527

RS4 / Pro / Pro2 / Nitro Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1585

RS4 Complete Ball Diff Units



Hardened steel outdrives, ground and polished thrust washers, 2 5x8mm ball bearings, and aluminum pulley. RRP 1590 Electric RRP 1595 Nitro

RS4 Diff Pulleys



Precision machined, hard anodized aluminum diff pulleys. RRP 1539 nitro sedans RRP 1528 electric sedans

RS4 Nitro Lightened Gear Adapter



This lightened gear adapter includes a machined nylon spur that's tougher than the stock gear and will last longer. RRP 1535

www.robinsonracing.com

RS4 Nitro 32 Pitch Conversion Kit is available. RRP 1536

2-Stage Troubles

I enjoyed reading your "Maxx-imum Racing Performance" article in the June issue. I'm in the process of building an E-Maxx just like it and have purchased the RPM 2-stage shock pistons. For some reason, however, the pistons bind terribly inside the stock plastic shock bodies, even when I fill the shocks with oil. How did you get your 2-stage pistons to work so well in your truck? [email]
DON PILLARS

I had the same problem when I installed the 2-stage pistons in my truck's shocks. The pistons are actually oversize, so they fit a wide variety of shocks from various manufacturers. I sanded the pistons down with 1,400-grit (fine) sandpaper until they slid into and out of the shock bodies smoothly. To properly "size" the pistons, you'll need to install them on the shock shafts with the stock E-clips, as directed in the instructions provided with the shock pistons. Next, take a small piece of wet sandpaper and cup it in your hands so it forms a cylinder shape like a shock body. Using the shock shaft as a handle, insert the 2-stage shock piston into the sandpaper "shock body" and quickly move it in and out to sand the edges of the piston evenly. Trial-fit the piston often until it slides into and out of the shock body without binding. Now do the same to the other seven shocks. (This sounds like a lot of work, but it will be well worth the effort.) ■



First, you measure the diameter of the inside shock to determine how much sanding will be required.

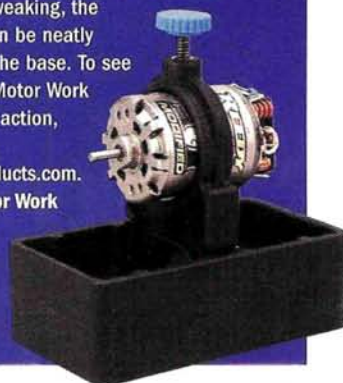
Sanding the shock piston with wet, rolled sandpaper will allow the shock piston to operate without binding.

TOOLBOX

RPM Motor Work Station

Everybody knows the use-your-spool-of-solder-as-a-motor-stand trick, but if you really want to work on a motor the right way, I've found that RPM's Motor Work Station is the best to get the job done—no matter what the job is. Plug the motor clamp into the broad base, as shown, and you'll find it's easy to spin a motor for break-in or simply hold it steady for capacitor installation. Two clamps are included; when they're installed at the ends of the base, one motor can be "slaved" to another for break-in using an included coupler tube. For no-drip bearing lubrication, you can even lay the clamp down in the base to hold the motor with the endbell facing upward. When you've finished tweaking, the clamps can be neatly stored in the base. To see the RPM Motor Work Station in action, visit www.rpmrcproducts.com.

RPM Motor Work Station—part no. 81292, \$12.95.



RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. The extra-hardened clutch bell fits ALL Associated and MIP shoes. RRP 2365

www.robinsonracing.com

Hardened Steel Idler Gear



Cut from solid steel stock, this gear is lightened and hardened for super quiet precision and extra long life. Jammin' tranny grease is included. RRP 2213 RC10-GT, RRP 7505 Ultima GP-R

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

Hardened Diff Gear



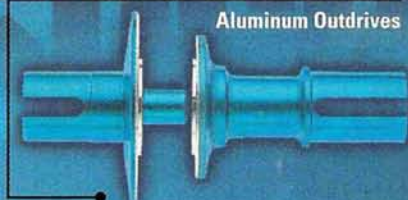
Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT RRP 7500 Ultima GP/EP-R

Blue Lightened Slipper Kit



The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated, RRP 7515 Kyosho Ultima

Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1475 TC3, RRP 1502 B3/T3

TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T. RRP 1670 RRP 1680.



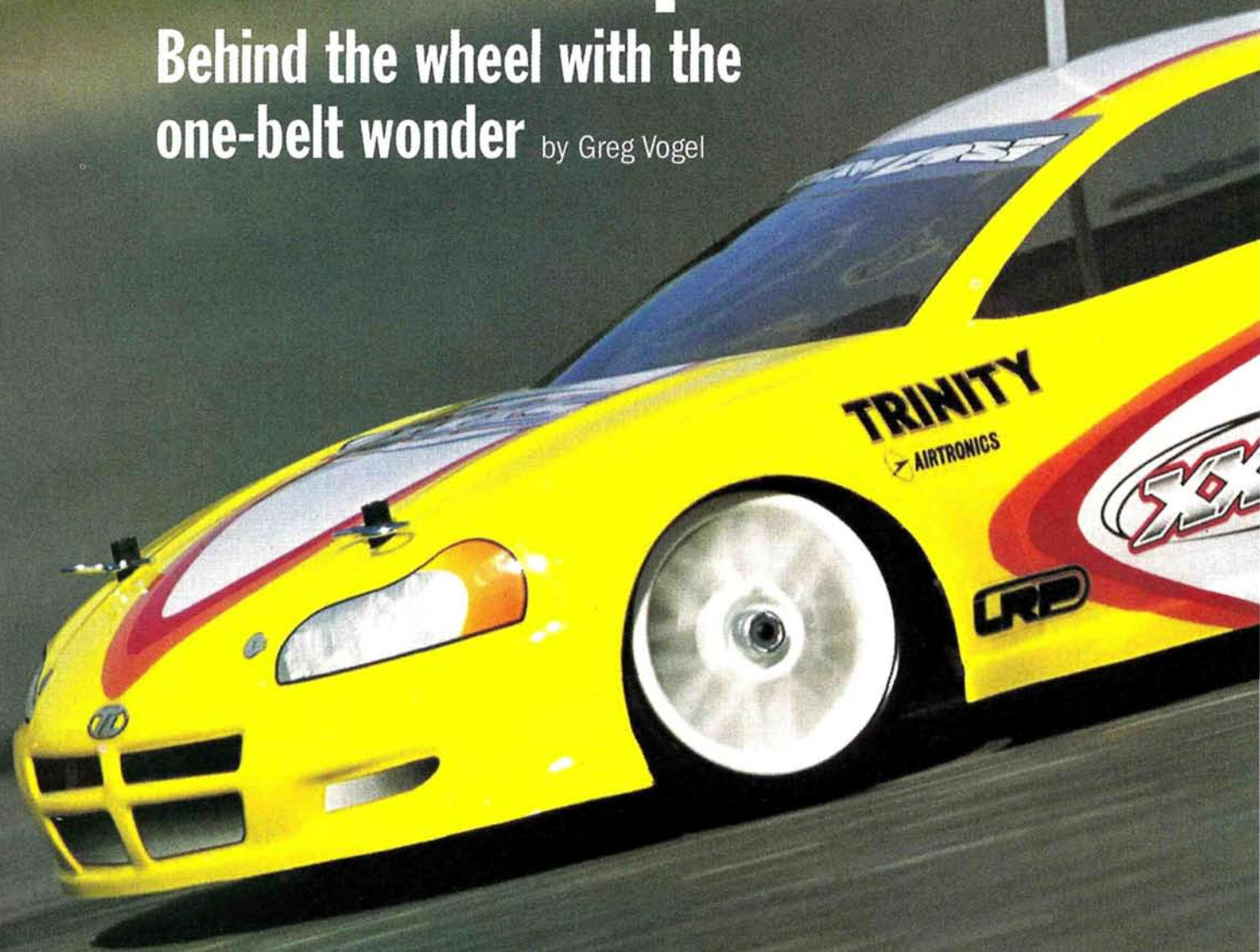
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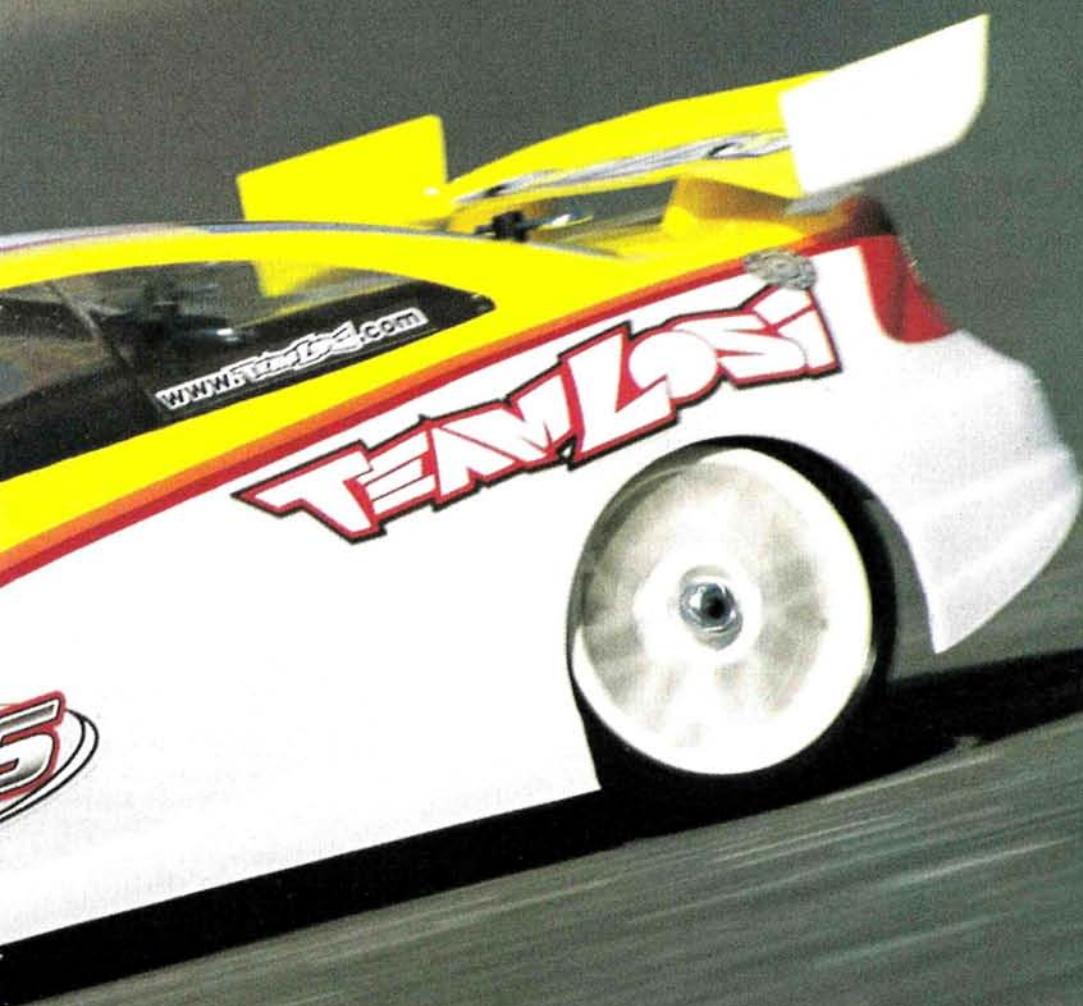
Team Losi Triple-XS

Behind the wheel with the
one-belt wonder

by Greg Vogel



Team Losi's Street Weapon earned a place in RC history as the first IFMAR Touring Car World Champion, but most racers will agree that the Street Weapon proved Losi's ability to transform a buggy into a sedan more than it proved Losi's ability to design a purpose-built competition touring car. With the Triple-XS, Team Losi, at last, has a no-compromise tourer that reflects the engineers' unique take on what a competition car should be. The Triple-XS blends accepted touring tech with radical departures from the sedan status quo to create a car that looks like nothing else—but looks as if it will work. I built one of the very first kits to roll out of the Team Losi Skunk Works to see just how well it performs.



This just in...
2001 ROAR
National Champion



PHOTOS BY WALTER SIDAS

DATA CENTER

VEHICLE TYPE 1/10-scale 4WD
electric touring car

BEST BUYER Any performance-minded RC enthusiast, but racers in particular

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit/finish Good

Durability Very good

Overall performance Excellent

SPECIFICATIONS

MANUFACTURER Team Losi

MODEL Triple-XS

DISTRIBUTED BY Horizon Hobby

Distributors

SCALE 1/10

STREET PRICE \$229.99

DIMENSIONS

Wheelbase 10.12 in. (257mm)

Width (F/R) 7.38 in. (187.5mm)

WEIGHT

Total, as tested 47.94 oz. (1,359g)

CHASSIS

Type Molded semi-tub

Material Losi Stiffezel composite plastic

DRIVE TRAIN

Type Single-belt 4WD

Transmission ratio 1.83:1

Pinion/spur gear (not included)

88-tooth/48-pitch

Drive shafts MIP CVDs

Differentials Ball

Bearing type Metal-/Teflon-shielded ball bearings

SUSPENSION

Type Lower H-arm with turnbuckle upper link

Shocks Hard-anodized aluminum, coil-over, fluid-damped

WHEELS

Type Plastic 16-spoke

TIRES

Type Losi treaded

INSERTS

Type Losi shaped strip

LIKES

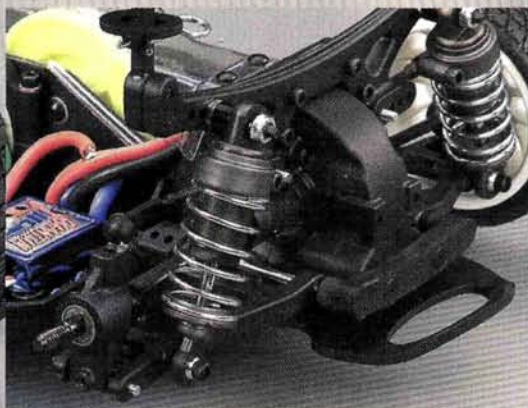
- Single-belt drive is nearly friction-free.
- Enclosed drive train protects belt and pulleys without limiting access to parts.
- Accepts Losi wheels as well as standard 12mm rims.

DISLIKES

- Treaded tires on a race car? Where are Losi's competition slicks?
- Integrated spur gear/main pulley does not permit use of non-Losi spurs.



Check out the rear hub carrier; the pivot ball is top mounted, and instead of E-clips, it uses a setscrew to retain the hinge pin. The ball bearings have a different shield on each side. One side is Teflon-sealed and the other is metal-shielded. The Teflon shield goes on the outside to protect the bearing from debris.



building & setup tips

The Triple-XS kit I tested included Team Losi's "working-copy" instructions that were in the midst of being proofed, so I won't point out any of the goofs I found in the manual. I noted any mistakes I found to Team Losi, and they, in turn, clued me in to a few that I missed. By the time shrink-wrapped Triple-XS kits hit the shops, you can bet the instructions will be dead-on. As with other Losi kits, the Triple-XS manual includes a ton of tuning info, very clearly written instructions supported by CAD drawings and full-size-hardware legends. Here are some tips to add:

Diff assembly. Rather than pressing the diff nut into its carrier, pass the diff screw through the carrier, thread the nut on a few turns, and then use the screw to pull the nut into the carrier. This is a good tip for any assembly step that requires nuts to be pressed into parts.

Chassis prep. Although you can fire the kit's screws directly into the chassis, the hard-as-nails Stiffozel plastic can give your wrists and your tools a real workout. Take a few extra minutes to prethread the holes in the chassis with the thread-cutting screw included in the kit, and you'll have an easier build.

Servo-saver assembly. If you're using a "standard" servo, follow the manual's advice and use only two of the three springs supplied; otherwise, the servo-saver will not be "soft" enough to protect your wimpy wheel pointer. Buy a real servo, you cheap bum.

Shock-tower installation. Don't go Incredible Hulk on the shock-tower screws; once they bottom out against the tower, they're tight enough.

Turnbuckle installation. As a racer, you know to install turnbuckles so they all face the same direction. But because Losi offsets the flats on the Triple-XS 'buckles, you'll have a hard time adjusting half of them if you install them that way. Pop them on so the flats are offset as far outboard on the car as possible.

Tire-insert assembly. Team Losi's shaped inserts work well, but they're strips, not donuts, so you'll have to glue the ends together first with contact cement. To do the job right, coat each end of the insert with glue, let it get tacky, and then stick the ends together.

The Triple-XS comes equipped with MIP CVD universals for both the front and rear. If you think the drive hex looks a little smaller than usual, you are correct. The car comes with small drive hexes to fit Losi sedan wheels and 12mm hexes to fit standard TC rims.

YOU'LL NEED

Transmitter and receiver
Steering servo
ESC
Motor
Battery

Paint
Tire glue

WE USED

Airtronics M8
Airtronics 94755
LRP Quantum
Trinity Green Machine 3
Trinity VIS-EXtra Stock
Metal Hydride
Parma Faskolor
Team Losi



KIT FEATURES

• **Chassis.** Designed around the car's signature single-belt drive system, the Triple-XS chassis is dominated by an integrated belt "tunnel" that spans the chassis and incorporates the front and rear diff housings. In addition to enclosing the drive belt and keeping it safe from pebbles, sand and carpet dust, the belt tunnel lends exceptional strength to the chassis, which is otherwise almost completely free of bracing. The chassis' material lends strength as well. Losi says it's "Stiffezel," a name long-used for plastics found in other Losi kits, but the stuff of the Triple-XS feels and appears more like graphite-plastic composite than the Stiffezel of previous cars. According to Team Losi, one of the primary design goals for the Triple-XS was a rigid chassis that would not take a "tweak" when stressed or crashed. To achieve that goal, Losi took great pains to minimize the number of individual chassis parts that could shift position and affect tweak. Because the chassis, belt tunnel/support member, motor mount, diff housings and shock-tower bulkheads are molded as a unit, the Triple-XS should be an exceptionally consistent car once it's dialed in.

Since a large belt tunnel divides the chassis, the Triple-XS must carry all six of its cells on the right side of the car. Seven chamfered battery slots are provided so the pack can move fore and aft to adjust weight distribution; a scalloped brace keeps the pack in place. For use with stick packs, the battery brace can be flipped over.

To offset the weight of the battery, the motor is placed on the left side of the chassis and mounted on a molded-in bulkhead. Unlike other touring cars with similar "split" layouts (most notably the Yokomo MR-4 series and Team Associated TC3), the Triple-XS chassis holds the motor more forward in the chassis. It's not quite mid-chassis, but the motor isn't tucked into the rear corner of the chassis.

• **Suspension and steering.** The Triple-XS sticks with conventional lower arms, steel-turnbuckle camber links and separate hub carriers and steering arms that pivot on hinge pins, but interesting details distinguish the Triple-XS from similarly equipped cars. First, there's the angle of the suspension arms' inboard hinge pins. It's nothing new for the rear pins to angle out a degree or two to provide rear toe-in, but the Triple-XS has similarly angled hinge pins up front; the spread from pin to pin is wider at the front of the pins than in the rear. Why do this? "It just works better," according to Team Losi. Fair enough. It should also be noted that the steering arms' upper kingpins incorporate ball studs for camber-link placement; all four suspension arms can be slid fore and aft on their hinge pins to adjust wheelbase, and thanks to the use of captured hinge pins and setscrews, there are no E-clips to lose.

In addition to the adjustable wheelbase, rear toe and anti-squat,



Here is a look at the chassis as it comes out of the box; some serious design work went into this bad boy.

over-what and under-huh?

The Triple-XS includes an extra diff pulley with 41 teeth—one tooth less than the two stock pulleys have. The smaller diff pulley changes the transmission ratio at whichever end of the car you install it and causes the diff with the 41-tooth pulley to turn faster than the diff with the 42-tooth pulley. By extension, the wheels that the 41-tooth diff spins will also turn faster (for the record, the ratio for the tranny with a 42-tooth pulley is 1.83:1, and it's 1.78:1 with the 41-tooth pulley). If the front diff is set up with the smaller pulley and therefore turns faster than the rear pulley, it is said to be *over-driven*. If the rear diff is set up with the smaller pulley, causing the front diff to turn more slowly than the rear, the front diff is said to be *under-driven*.

Great; but why would you want to do this? It all depends on conditions. As the Triple-XS manual notes, an over-driven setup will have less off-power steering but will have more steering when exiting turns. If you set the car up to be under-driven, it will have more turn-in steering but less steering when exiting turns. At this point, we could begin a long discussion of why this is, but your head might explode. Better to discuss overdrive and one-way diffs instead

If you install a one-way front diff on the Triple-XS, you'll be able to over-drive the diff with the 41-tooth pulley to give the car a stable, full-time 4WD feel, as the over-driven pulley will tend to keep the one-way bearing engaged longer. There is also the potential for the 41-tooth pulley to be used to compensate for tires of different diameters. Does anyone do this? Not that I've heard of, but you never know what people will try!

as well as front-arm kick-up/caster, can be adjusted by installing different hinge-pin blocks. Both ends of the car can be set with 0, 2, or 4 degrees of kick-up or anti-squat.

Team Losi's well-proven Hard Body shocks outfit the Triple-XS and use clamping preload collars to secure silver springs. Wide, molded shock towers complete the suspension and are attached to the chassis via deep "sockets" that fit precisely to the molded-in bulkheads. It's all part of Losi's master plan to engineer a "tweak-free" car by using as few individual chassis components as possible and precisely keying any parts that cannot be integrated to the chassis, so that nothing can budge under load or in a crash, which would result in the chassis taking a "tweak."

• **Drive train.** The Triple-XS's single-belt drive system is its hallmark feature and is a radical departure from the triple belts of the Street Weapon and the dual-belt standard of most other tourers. The single-belt system is very simple; we'll start with the motor, which is held to the chassis by a Street Weapon/Double-X4-style aluminum

Right: if you look closely, you'll notice the aluminum bar with a tab at the end that the small pulley behind the spur gear is attached to. When you push down on the tab, the bar pivots on the spur-gear shaft and raises the pulley to tighten the belt.



THE COMPETITION*

	DRIVE TRAIN	CHASSIS	DIFFS (F/R)	SHOCKS	BALL BEARINGS	STREET PRICE**	REVIEWED
Associated TC3 Factory Team	Shaft	Plastic composite	Ball	Threaded aluminum	Teflon sealed	\$299	05/01
HPI RS4 Pro 3	Dual belt	Plastic composite	Ball	Threaded composite	Rubber sealed	\$219	07/01
Kyosho KX-One	Single belt	Graphite plate	One-way/ball	Aluminum	Metal shielded	\$380	10/01
Schumacher Axis 2	Dual belt	S1 woven composite	Ball	Aluminum	Metal shielded	\$219	03/01
Tamiya TA04 Pro	Dual belt	Fiberglass	Ball	Plastic	Rubber sealed	\$250	12/00
Team Losi Triple-XS	Single belt	Plastic composite	Ball	Hard-coated aluminum	Teflon shielded	\$229	10/01
Yokomo MR-4 TC Pro	Dual belt	Plastic composite	One-way/ball	Aluminum	Rubber sealed	\$229	04/00

*Partial list; category is too large to list all competitive vehicles. **Approximate; price varies with dealer.

cam and molded plastic strap—but the similarities end there. The pinion gear (not included) engages the 88-tooth spur gear within the “belt tunnel,” and the spur gear is molded with an integral 23-tooth drive pulley. The single-drive belt (which is constructed of the low-friction blue stuff Losi developed for the Double-X4 cars) wraps around the drive pulley, and over a tension pulley and then loops around the large-diameter 42-tooth front and rear diff pulleys (Losi also includes a 41-tooth underdrive/overdrive pulley—see sidebar on page 71). The tension pulley is mounted on an arm that pivots to adjust tightness, and a Lexan cap covers the open top of the belt tunnel.

With the exception of their large-diameter pulleys, the Triple-XS diffs are standard Losi stuff. Both diffs are externally adjustable and feature molded outdrives with indexed diff rings and a smooth-turning, large-diameter thrust bearing.

• **Body, wheels and tires.** Losi defies ROAR rules with the Triple-XS's sleek two-door “Stratus-Fear” shell. According to ROAR, legal TCs must have four doors; for you sticklers, two more doors are



Remove six screws and the rear diff cover comes off. After you take the cover off, all you have to do to remove the diff is to loosen the belt.

just a Sharpie marker away. The body does a good job of capturing the curves of the newest Stratus coupes, and a complete set of realistic detail decals and the latest Losi logos are included, plus window masks.

The new body is matched with “old” wheels and tires, which have been lifted from the original Street Weapon. Sixteen-spoke hoops, shaped strip-style inserts and treaded rubber are provided. The rims use Losi-only hexes, but optional 12mm hexes are provided to suit standard touring car wheels. Whether you’ve got a box of Weapon rims or a stash of 12mm wheels, you’ll be able to fit them to the Triple-XS.

THE VERDICT

The Street Weapon will always be Team Losi’s first touring car, but the Triple-XS

reduces that car to footnote status. Given the intense competition in the electric touring segment, it would have been achievement enough for Losi to release a car that was merely as good as anything else in the category, but the Triple-XS just might be the best sedan out there. I can’t confirm its ultimate performance capability against other cars without back-to-back testing, but I can say that the Triple-XS has utterly neutral, highly predictable handling that seems to suit “slow-is-fast” and “brake late, accelerate hard” driving techniques with equal ease. The single-belt drive system seems to defy physics; even with a stock motor in place, the Triple-XS coasts like an oiled ice cube on a frozen water slide. Be prepared to dial in some drag brake!

Off the track, the car is very simple to work on. Ever wanted to rebuild your diffs before the Mains, but blew it off because the job required you to practically rebuild the car? The Triple-XS can unload both diffs in about a minute. Likewise, caster and anti-squat changes take less time than a walk to the heat sheets. As good as the Triple-XS is straight from the box, the ease with which you can make setup changes only makes it that much more likely that you’ll find the very best setup for your track.

But perhaps the best thing about the Triple-XS is its *unchanging* nature when it comes to tweak. Build the Triple-XS straight, and it will stay straight. When the clown you’re lapping hears “Take out the leader” instead of “Make way for the leader” and puts you into the boards like the opening credits for *Speed Racer*, you’ll be glad to know that the setup your Triple-XS left the track with will still be there when the marshal puts your car back on the track ... which means you’ll be putting another lap on clown-boy even sooner. ■

Performance

by Derek Buono and Greg Vogel



When a company releases a new sedan, we are often impressed by improvements in its performance and handling compared with the company’s previous model. The performance of Losi’s new Triple-XS not only surpasses that company’s Street Weapon’s but also those of many of the other sedans we’re toying with. We tested the Triple-XS separately, and our impressions were, surprisingly, exactly the same. Here’s what we thought:

Low-speed turning

The Triple-XS handled low-speed turns with ease and was only loose if we got on the throttle hard and went full lock to lock. Overall, it’s very predictable and stable.

High-speed turning

Even on untreated pavement, the Triple-XS stayed planted, easily making it through our “makeshift” sweeper while maintaining speed.

Handling characteristics

Mild on-power understeer and mild off-power oversteer made the Triple-XS easy to drive. Pushing out farther than you want it to in a turn? Let off the throttle, and it will come right back into the corner; get back on the gas without any risk of washing out.

Acceleration and run time

Acceleration was sweet. Even with a 12-turn and 2000s, it launched hard, and with a practice pack of 2000s, it cranked out 6 minutes, 45 seconds of run time; this included tons of stop-and-go braking and acceleration on a track with tight, 180-degree turns.

Braking

When we applied the brakes, the Triple-XS slowed down without pulling to either side. With a hard tap of the brakes the belt did skip about 4-clicks, but Losi said that is acceptable.

Breakage

Nada! We gave the car some hard knocks to test Losi’s “can’t tweak it” claims, and nothing broke (and yes, the chassis stayed true). Only the treaded tires suffered: we wore out the center of the left rear one; but overall, the tires hooked up surprisingly well on the untreated pavement.

SOURCE GUIDE

AIRTRONICS

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Kyosho KX-One

One less belt, and a lot less chassis by Peter Vieira

Kyosho as touring-car innovator? I wouldn't have used those words to describe the conservative Touring Force series of cars that, while competitive and nicely built, did much more to reflect touring-car trends than to shape them. So much for that pigeonhole; Kyosho's newest sedan definitely changes my take on Big K's position in the touring-car universe. The KX-One breaks away from the norm with its single-belt drive train and highly unorthodox ladder-style chassis while retaining the well-sorted suspension of the last Touring Force car, the TF-4. Will the mix of proven and prototype gel as a new standard for Kyosho touring cars (if not other brands), or will it flame out as a technological footnote? That Magic 8 ball we call the racetrack will tell the tale.



DATA CENTER

VEHICLE TYPE 4WD electric competition touring car

BEST BUYER Racers and RC enthusiasts with a taste for top-of-the-line

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Good

Parts fit and finish Very good

Durability Very good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER Kyosho

MODEL KX-One

DISTRIBUTOR Great Planes

SCALE 1/10

STREET PRICE \$389

DIMENSIONS

Wheelbase 10.2 in. (259mm)

Width 7.4 in. (188mm)

WEIGHT

Total, as tested 48.2 oz. (1,366g)

CHASSIS

Type Ladder-style

Material 2mm graphite plate

DRIVE TRAIN

Type Single belt

Primary Pinion/spur gear

Drive shafts Steel universal joint

Differentials (F/R) One-way/ball type

Bearing type Shielded ball bearings

SUSPENSION

Type Lower H-arm with turnbuckle upper link

Damping Fluid-damped with variable compression/rebound damping

WHEELS

Not included

TIRES

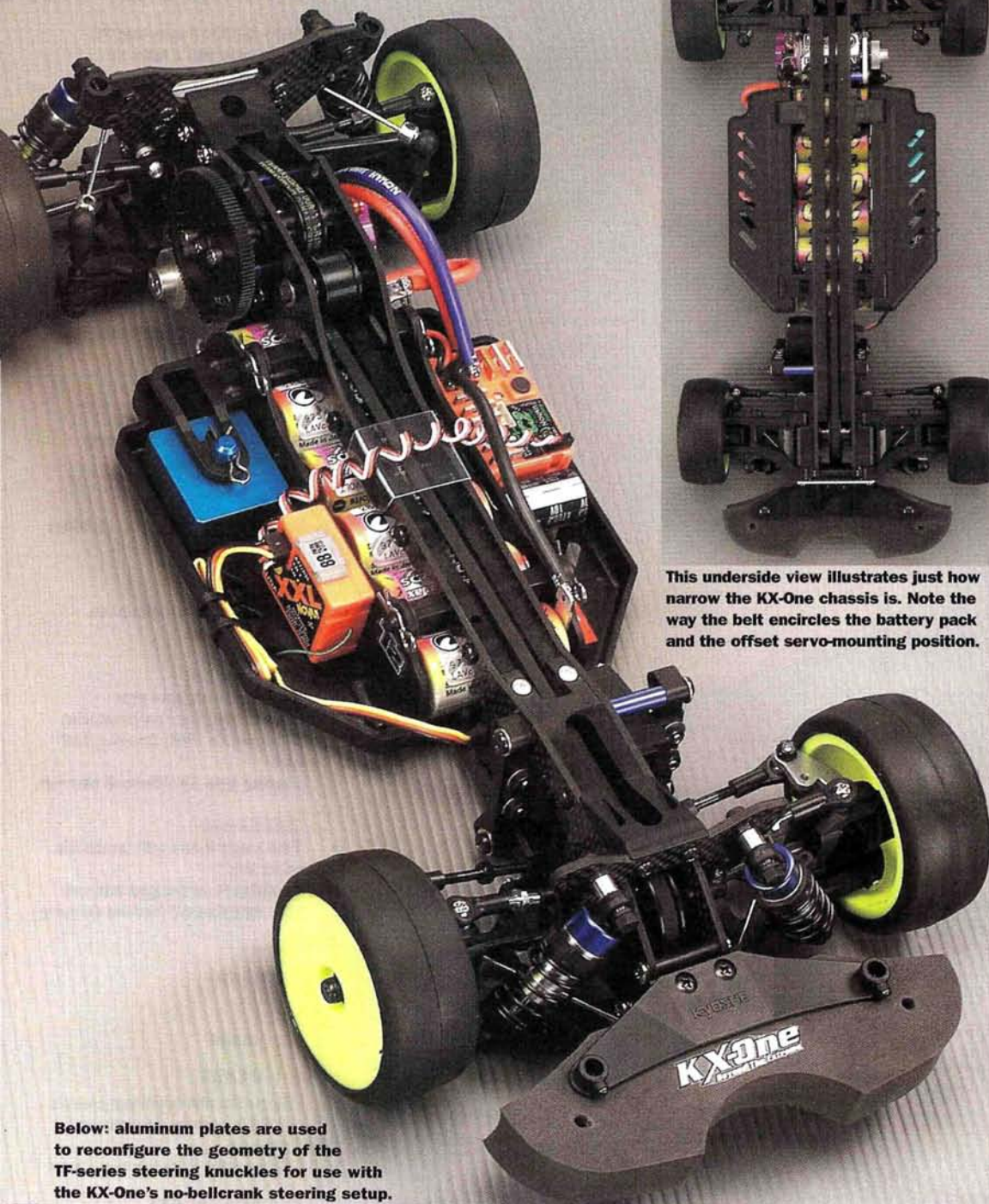
Not included

LIKES

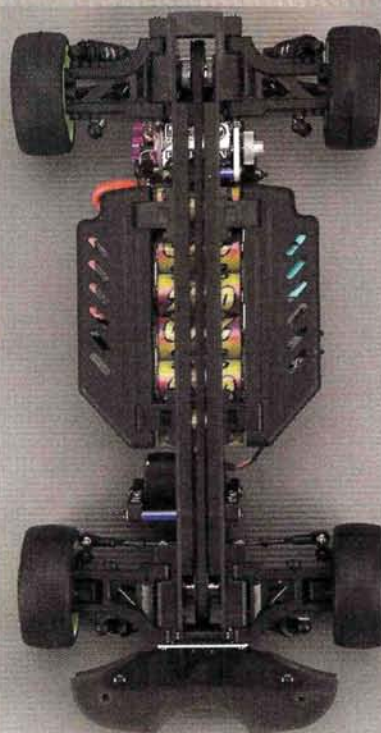
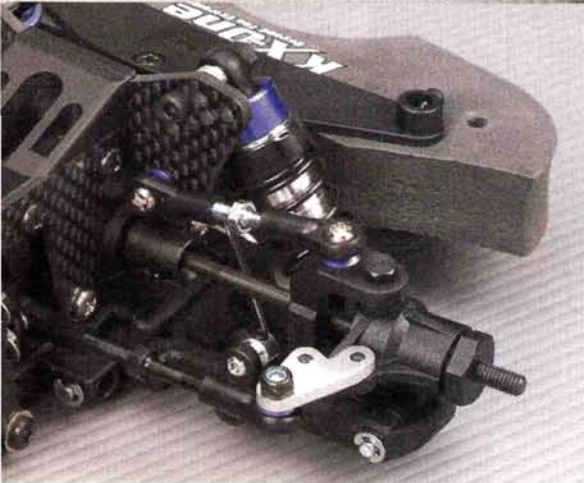
- Innovative and functional chassis.
- Variable compression/rebound damping.
- High-quality materials throughout.

DISLIKES

- Battery fit is sloppy when using side-by-side cells.
- Expensive.



Below: aluminum plates are used to reconfigure the geometry of the TF-series steering knuckles for use with the KX-One's no-bellcrank steering setup.



This underside view illustrates just how narrow the KX-One chassis is. Note the way the belt encircles the battery pack and the offset servo-mounting position.

building & setup tips

The KX-One's instructions are well illustrated and accurate, but they're light on text and don't point out critical details very emphatically. Read through the manual before you build, highlight the icons that indicate left- and right-hand parts, repeated steps, or anything else you think you might otherwise miss, and you'll do fine; everything goes together easily. If you rush out to buy a KX-One, you may also have some addendum sheets in the manual, as I did. The changes to the indicated steps are minor, but be sure to note them. Here are some specific steps to consider:

Step 1. Double-check the lengths of the screws that secure the arm mounts; if you grab 3x10mm screws instead of the required 3x8mm, the screws will protrude into the hinge-pin bores. I made this mistake and caught it only after I had finished the chassis, and I had to do a lot of disassembly to fix the goof. Check those screws!

Step 3. Inspect the top chassis spar for leftover parts-tree "nubs" on its rear tip; if you find any, trim them off. Otherwise, they'll prevent the motor from sliding up to the spur gear for proper gear mesh. Install the antenna mount on the top spar before you install the spar on the chassis; the screw isn't easily accessed after installation. Alternatively, you can drill a hole in the right-side "wing" and mount the antenna there so the wing can be removed without unthreading the antenna from its tube.

Step 10. Look closely at the arrows that indicate the position of the layshaft pulley-bearing retainers; they appear to be pressed in from outside the chassis but are actually installed from within.

Step 13. The aluminum plates used to reconfigure the steering arms are secured by screws that are not locked with nuts; for peace of mind, install them with a dab of thread-lock.

Step 14. The upper and lower kingpins are of different lengths; just use the full-scale-hardware legend and your eyeballs to get it right.

Step 24. Pay attention to the number of spacers in the shocks; the rears get one each, the fronts take three. When installing the ball cups on the shock shafts, pay attention to the gap between the end of the shock body and the shoulder of the ball cup; if you simply thread the cups on until the shock shaft's threads are hidden, your shocks will be too short. The gap should measure 12mm in the rear, 10mm in the front.

YOU'LL NEED ■ Transmitter and receiver
■ ESC ■ Steering servo ■ 6-cell battery pack ■ Motor
■ Charger ■ 190mm body ■ Touring-car wheels ■ Tires

FACTORY OPTIONS

- Titanium screw set—part no. KXW01
- Aluminum spur-gear mount—SPW116
- Aluminum rear hub, 0 degrees toe—SPW123
- Aluminum rear hub, 2 degrees toe—SPW123-2
- Aluminum antenna holder—1710
- Altezza body set—39965
- On-road tuning spring set, firm—92001

KIT FEATURES

• **Chassis.** The KX-One's chassis is clearly its most striking feature. Though the material of choice (graphite plate) is hardly anything new, the chassis configuration is entirely unique within the touring-car segment. Instead of installing the KX-One's drive train and suspension components on top of a flat plate with some type of stiffening upper deck, Kyosho built the car around a pair of vertical plates that are joined by thick plastic girders and bulkheads. The left and right sides of the chassis are identical, and the completed assembly has absolutely zero vertical compliance—no flex at all. Despite its slenderness, the KX-One is among the stiffest

• **Drive train.** If the race to build the first single-belt touring car ends at the hobby-shop shelf, then you can consider the KX-One to be the winner (note: I don't consider the Tamiya TA03 to be a true one-belt car, since its single belt simply connected a pair of gearboxes). The KX-One's belt loops around both diffs and is then pushed against a layshaft-mounted drive pulley by a wide tension roller. The roller can be raised or lowered in the chassis to adjust belt tension. The drive pulley is larger in diameter (20 teeth versus 15 or 16) than that of a typical two-belt car, and correspondingly large differential pulleys are employed. Each has 39 teeth, for a ratio of 1.95:1. When combined with the included 110-tooth spur

gear and 43-tooth pinion, the final drive ratio is very stock-motor-friendly at 5:1. The spur gear is held on the layshaft by a plastic hub that accepts standard spurs.

The rear differential is a 12-ball unit, with aluminum flanges and Delrin outdrives. To prevent slippage, sharp facets machined into the flanges grab the outdrives when the diff is tightened, and thick collars slide over the outdrives to prevent spreading under acceleration. The front diff is a one-way design, and as such, it uses hardened-steel outdrives to survive the pinch of the one-way when it grabs them.

Kyosho specs universal axles at both ends of the car, and their design closely follows the MIP CVD standard. Well, mostly; Kyosho omits the pivot incorporated in the classic MIP design and simply slides a crosspin through a slot in the "ball" end of the axle, and a collar slides over the assembly to capture the crosspin.

• **Suspension and steering.** Fans of Kyosho's TF-4 will recognize the

KX-One's suspension parts, which were lifted directly from the last of the Touring Force cars. It's good stuff; the front arms are capped, the front hub carriers hold the outboard hinge pins very close to the wheels' centerline, and the parts are stiff. To hold the suspension arms to the chassis and provide front-arm kickup and rear anti-squat, small arm mounts are installed on the chassis plates. Steel turnbuckle camber links are used throughout.

The KX-One's chassis is very stingy with material. Note the offset motor plate used to keep the motor centered in the chassis and the thick plastic reinforcing rings on the rear outdrives.

Left: the KX-One's shocks have a few additional parts that aren't shown here, but these are the biggies: dual-cap aluminum bodies, Teflon floating pistons, a single O-ring seal and a Teflon shaft guide.

Right: here's Kyosho's floating piston setup, disassembled. Note the difference in the hole sizes and the conical area that guides the shock fluid toward the piston skirt.

chassis I've built, as judged by the two-handed-twist method. You can force the car to flex torsionally, but it's tough.

One thing the KX-One's chassis lacks is space, a problem Kyosho solved by adding plastic "wings" to support the electronic gear as well as a transponder. The wings also capture the battery, which fits into a massive slot in the chassis that can swallow stick or side-by-side packs. To remove the pack, one of the wings must be removed by popping off a pair of body clips.

THE COMPETITION*

	DRIVE TRAIN	CHASSIS	DIFFS (F/R)	SHOCKS	BALL BEARINGS	STREET PRICE**	REVIEWED
Associated TC3 Factory Team	Shaft	Plastic composite	Ball	Threaded aluminum	Teflon sealed	\$299	05/01
HPI RS4 Pro 3	Dual belt	Plastic composite	Ball	Threaded composite	Rubber sealed	\$219	07/01
Kyosho KX-One	Single belt	Graphite plate	One-way/ball	Aluminum	Metal shielded	\$380	10/01
Schumacher Axis 2	Dual belt	S1 woven composite	Ball	Aluminum	Metal shielded	\$219	03/01
Tamiya TA04 Pro	Dual belt	Fiberglass	Ball	Plastic	Rubber sealed	\$250	12/00
Team Losi Triple-XS	Single belt	Plastic composite	Ball	Hard-coated aluminum	Teflon shielded	\$229	10/01
Yokomo MR-4 TC Pro	Dual belt	Plastic composite	One-way/ball	Aluminum	Rubber sealed	\$229	04/00

*Partial list; category is too large to list all competitive vehicles. **Approximate; price varies with dealer.

JR Racing R-1 transmitter

My favorite R1 feature is the giant dot-matrix screen and the Game Boy-like graphics it permits; you can see exponential curves change as you dial in your settings and watch sliders move up and down like a mixing board in a recording studio as you adjust trim functions.

Novak Cyclone TC2 ESC and XXL receiver

The latest Cyclones are both excellent, and the touring-car-specific model (TC2) was a natural for the KX-One. I paired the TC2 with Novak's XXL receiver, which features super-narrow 10kHz channel spacing and an internal "radio frequency shield" to guard against glitching.

Team Orion V-Max Plus Sanyo 2400 pack

According to Orion, the V-Maxx process permanently lowers the internal resistance of the cells. Orion also uses "race discharge simulation" (RDS) to dump the cells at a variable amp rate to simulate the constantly changing loads that cells encounter in competition.

Team Orion 12x2 Chrome Touring motor

Orion's best touring mod includes serrated brushes, a hand-wound, epoxy-balanced armature, polarity-coded brush heat sinks and surface-mount capacitors. I don't miss soldering caps!

Hitec HS5645 MG digital servo

"Digital" means torque and holding power, and the HS5645 is also tough, thanks to a ball-bearing output shaft, metal gear train and an aluminum output arm (which I couldn't use this time around, but it's still cool).



The shock towers are carbon fiber, and the shocks are an all-new design for Kyosho. Floating pistons are the shocks' most interesting feature. As the pictures show, a floating piston slides up and down on the shaft over a fixed pinion that is permanently attached to the shock shaft. As the shock compresses, the floating piston settles over the fixed piston, which increases damping. As the shock extends, the floating piston rises off the fixed piston, which decreases damping force. This allows the shock to rebound more quickly while maintaining the relatively heavy compression damping preferred by most touring-car drivers. Other shock features include soft bladders, Teflon shaft guides, single O-ring seals and snap-on preload spacers. The included springs are identical front and rear and feel relatively stiff, but Kyosho does not specify their rate. Yoke-type swaybars are the final element of the KX-One suspension; both ends of the car are outfitted with 1.2mm bars.

One casualty of the KX-One's unique chassis design is a conventional bellcrank steering system. Luckily, touring cars can be steered effectively with direct-link steering, and that is the route Kyosho took. To maintain proper geometry, the original TF-4's steering arms must be modified slightly by trimming away the original tie-rod pivot location, then relocating it by means of screw-on aluminum plates.

Since there are no bellcranks, there is no way to incorporate a bellcrank-mounted servo-saver. Instead, Kyosho supplies a servo-mounted unit. Kit-supplied servo-savers of this type are usually much too "soft" for high-performance driving, but due to space limitations, the KX-One must use the factory servo-saver. I'm happy to report that the Kyosho unit uses a heavy-duty spring and won't waste the torque of a competition servo.

• **Body, wheels and tires.** Not included, not included and not included. I tested my KX-One with Treadz soft-compound V3 slicks and the "pie" (dish) wheels they are factory-glued onto, and I covered everything with a Parma LX200 body.

PERFORMANCE

Before putting a single pack through the KX-One, I swapped out the stock gears for a more mod-motor-friendly setup. The included Kyosho parts work fine for stock racing, but they deliver a ratio that's too tall for mod motors. After 2 minutes of wrenching, the KX-One rolled out with a 120-tooth spur, a 29-tooth pinion and an 8.06:1 final-drive ratio—a much better match for the Team Orion 12-double motor.

I had a van-load of PVC tubing and corner dots ready to set up a track at a newly paved parking lot that was still empty of painted lines and parking blocks. Before plugging any pipes together, I took the KX-One out for a quick blast to see what sort of generic handling tendencies the car had. With its front and rear swaybars and one-way front diff, I anticipated that a wide-open, no-brakes driving style would best suit the KX-One, and I didn't want to bother setting up a technical course for a car that preferred to swing through sweepers. It turns out I was right; the KX just did not like to slow down, and it spun very easily no matter how gently I fed in the brakes. So rather than frustrate myself with a lot of switchbacks, I spread out a simple "U-inside-a-U" layout that provided four long straights, two big sweepers and two 180-degree turns to tie it all together.

The KX-One launched impressively, even with all four of its (cold) tires lit up. After a little side step, it hooked up, straightened out and accelerated almost inaudibly to top speed. After I let off, I thought for a moment that I had a runaway car because the KX didn't seem to slow down. I pinned the brakes, brought it back around and rechecked my radio settings; the KX was coasting so

easily that I thought the ESC was pumping voltage at neutral. Nope; everything was set up properly. Thanks to its silky mono-belt drive train and one-way front diff, the KX is as close to frictionless as anything I've driven (but I haven't driven the new Losi car yet).

Pitching the KX-One around the double-U was an exercise in tire-baking slide technique, as I drifted the car full throttle through the big sweepers. The car swung through the turns equally well no matter which way I ran the course, which dynamically proved it was tweak-free, and it was easy to tighten up in the turns by easing off the throttle.

The KX gained traction as the Treadz heated up, but the full swaybar setup still favored a sliding technique to get around the track. The layout's dual hairpin turns were a problem; because the one-way front diff does not allow the front wheels to brake, the KX liked to lock its rear wheels and spin itself. It was definitely more than I could handle, so I resorted to pitching the car sideways well before the apex, then squaring it off by blasting the throttle when the front bumper was lined up with the next straight. It wasn't stylish, but it beat slowing to a crawl and tip-toeing around the turn. I also tried deactivating the rear swaybar to get more rear traction, as well as a no-swaybar setup. The KX-One still liked to slide tractably in either configuration, but it did turn in more aggressively without swaybars. When using the front swaybar only, the rear end broke free a little more abruptly instead of reaching and exceeding the traction limits "seamlessly," as it did with a swaybar. Once in drift mode, the KX handled the same with or without swaybars, and steering by throttle was the best way to adjust the line through the turns.

THE VERDICT

I'm not signing off completely on the KX-One yet; until I actually run it in high-traction conditions, I have to reserve judgment, and I do want to try driving it with a standard front diff. For now, my only gripe is its cost: at a whopping \$380 (give or take), the KX-One is significantly more expensive than other competitive cars. But I can say that the KX-One is ready for fast, open tracks straight from the box. It really is a pleasure to drive, and it feels exceptionally quick. The KX-One is unique among all of the touring cars out there; it's also very well equipped, with variable-damping-rate shocks, a one-way front diff, lightweight plastic rear diff, universal drive axles and high-quality graphite parts. High performance? Guaranteed. Worth it? That's your call. ■

SOURCE GUIDE

HITEC RCD INC.

12115 Paine St., Poway, CA 92064; (858) 748-6948; www.hitecrcd.com.

JR RACING

Distributed by Horizon Hobby Inc., 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511; www.horizonhobby.com.

KYOSHO

Distributed by Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; www.kyosho.com.

NOVAK ELECTRONICS INC.

18910 Teller Ave., Irvine, CA 92612; (949) 833-8873; www.teamnovak.com.

PARMA/PSE

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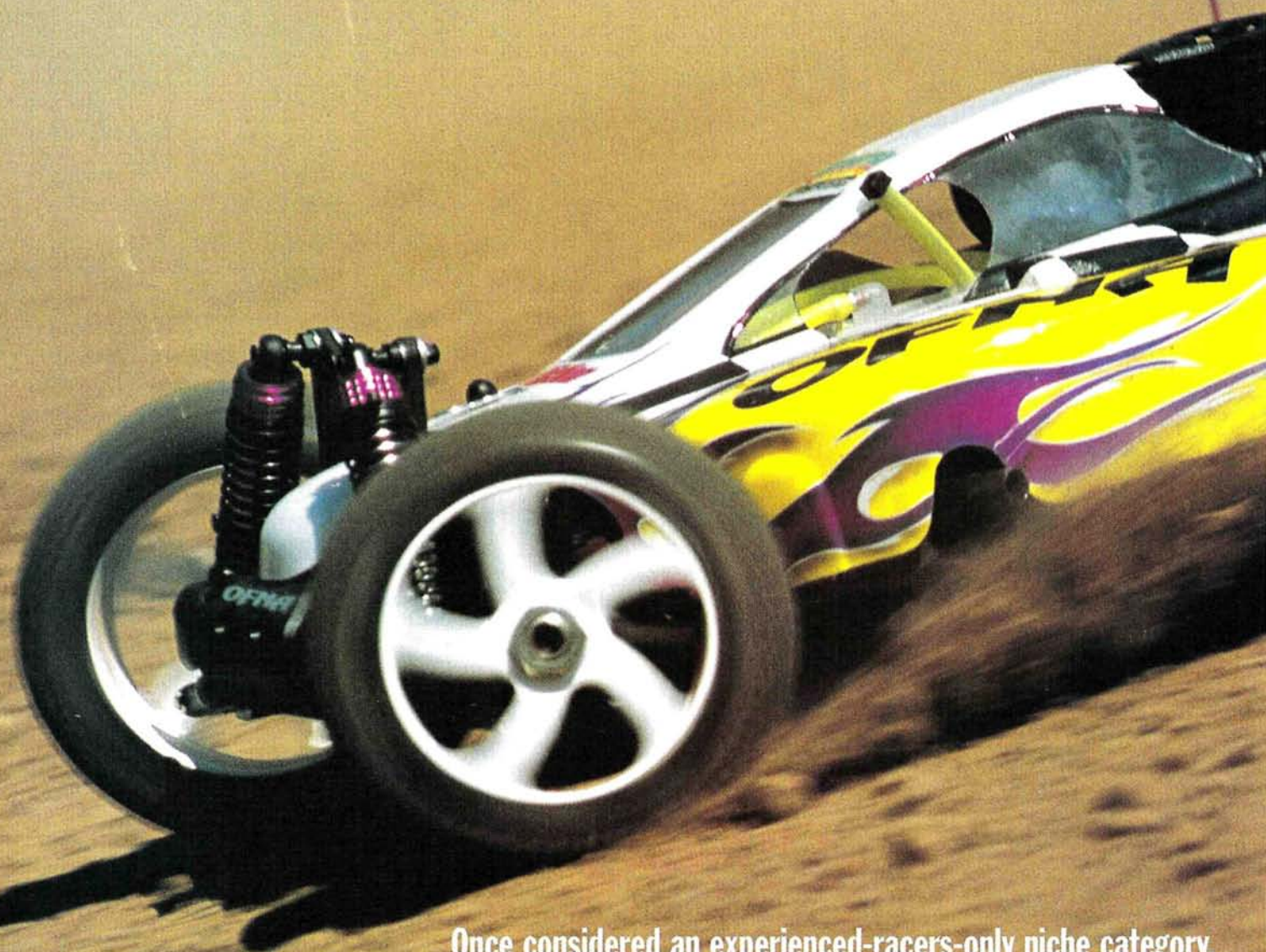
22601 La Palma, Ste. 103, Yorba Linda, CA 92877; (714) 694-2812; www.team-orion.com.

TREADZ

Distributed by King Distribution, 589 Artrea Pl., Las Vegas, NV 89123; (702) 407-6870; www.treadztires.com.

OFNA Hyper 7 Pro

Graphite, aluminum,
purple—oh my! by Bob Hastings



Once considered an experienced-racers-only niche category, 1/8-scale buggies are becoming a fast-growing segment of mainstream RC. OFNA's role in the popularity of the big buggies can be traced back to the days of its original HODR. The Hyper 7 Pro is the first vehicle to follow OFNA's Ultra series of buggies and is designed to stand alongside its present vehicles as a two-pronged approach to 1/8-scale success. With its purple-anodized accents and extensive graphite treatment, this buggy unquestionably looks like a trench fighter. I was eager to get it dirty.



DATA CENTER

VEHICLE TYPE 1/8-scale nitro-powered 4WD competition off-road buggy kit

BEST BUYER Intermediate off-road enthusiast who is looking for an 1/8-scale competition vehicle

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Excellent

Parts fit and finish Very good

Durability Very good

Overall performance Good

SPECIFICATIONS

MANUFACTURER OFNA

MODEL Hyper 7 Pro

SCALE 1/8

STREET PRICE \$450
(not including engine)

DIMENSIONS

Wheelbase 12.48 in. (317mm)

Width 11.97 in. (304mm)

WEIGHT

Total, as tested 121.28 oz.
(3,437g)

CHASSIS

Type Stamped plate with upper bracing

Material 7075 aluminum

DRIVE TRAIN

Type 4WD shaft-driven

Primary Clutch bell/spur gear

Drive shafts (F/R) CVA universals/dogbones

Differentials Bevel gear

Bearing type Rubber-sealed ball bearings

SUSPENSION

Type (F/R) Lower H-arm with upper A-arm/lower H-arm with camber link

Damping Aluminum fluid-damped coil-over shocks

WHEELS

Type OFNA one-piece 5-spoke

TIRES

Type OFNA multi-pin

ENGINE AND ACCESSORIES

(Engine not included)

Air-filter element OFNA

Fuel capacity 125cc

Manifold OFNA round port

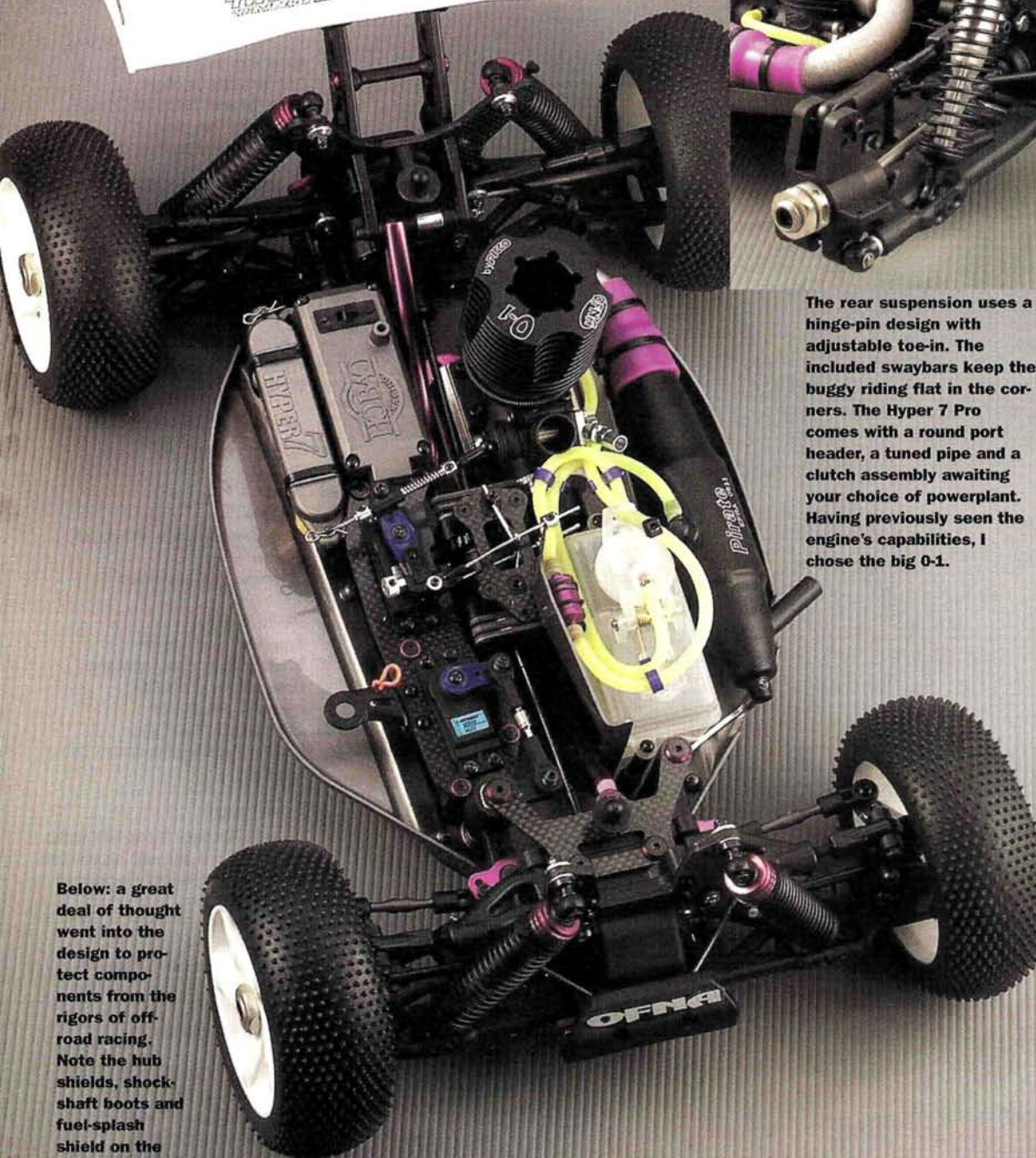
Pipe OFNA Pirate EFRA Q511

LIKES

- Full-color, CAD-illustrated instructions.
- Plenty of purple-anodized components.
- Smooth operating drive train.

DISLIKES

- Flexible suspension arms.
- Front upper arms should have turnbuckles.
- Front tires can balloon and strike the body.



Below: a great deal of thought went into the design to protect components from the rigors of off-road racing. Note the hub shields, shock-shaft boots and fuel-splash shield on the tank.



The rear suspension uses a hinge-pin design with adjustable toe-in. The included swaybars keep the buggy riding flat in the corners. The Hyper 7 Pro comes with a round port header, a tuned pipe and a clutch assembly awaiting your choice of powerplant. Having previously seen the engine's capabilities, I chose the big 0-1.

building & setup tips

The Hyper 7 Pro's instructions set a new benchmark for ease of reading. The colorful CAD illustrations go beyond the clearest photo or the most precise illustration or line drawing. As with all 1/8-scale buggies, it's important to be mindful of the details. Here are a few things to pay particular attention to.

Thread-lock. Don't be stingy here. Pick up a new tube of the blue hobby-grade stuff at the hobby shop, and get rid of your old thread-lock. Depending on the manufacturer, aging thread-lock can chemically separate and become useless.

Radio gear. Plan your new 1/8 buggy around a high-quality FM radio set with an upgraded steering servo. You're buying a fast, fun car, so get a radio that will keep you out of the boards and can handle the berms, too.

Tire mounting. I like the slotted bead rim that's used on 1/8-scale buggies. I find it easiest to use a good-quality tire glue and then wrap the entire tread lengthwise with masking tape and leave the tire upright until the glue dries. To prevent the glue from becoming brittle, don't use kicker.

After-run maintenance. Establish a regimen that covers cleaning, inspecting and maintaining the entire chassis, engine and drive train. You're in the big leagues now, so it should be second nature to check all of the fasteners, lube the rotational components and generally keep the buggy in like-new condition.



YOU'LL NEED

- Transmitter and receiver
- Steering and throttle servos
- Receiver battery
- .21 engine
- Polycarbonate-compatible paint
- Fuel
- Fuel bottle
- Glow igniter
- Thread-locking compound
- Starter box

FACTORY OPTIONS

- 4mm chassis—part no. 87313
 - Torsen differential (F&R)—87325
 - Torsen differential (center)—87326
- ALUMINUM PARTS:**
- Rear upright—87308
 - Torque rods (F/R)—87309/87310
 - Rear stay and wing post—87311
 - 4mm washer and screw set—87312
 - Rear arm turnbuckle—87314
 - Steering knuckle turnbuckle—87315
 - Ball mount for rear bottom arm—87317
 - Battery cover—87324

KIT FEATURES

• **Chassis.** The Hyper 7 Pro is equipped with a 3.5mm channeled lower aluminum plate that provides plenty of rigidity. The front has been engineered with slight kick-up, and all of the hex-type screws are fully countersunk. The chassis has two large purple-anodized aluminum reinforcing braces; the front one runs just forward of the center diff to the upper steering/nose plate. In the rear, the chassis brace runs from behind the center diff back to a crossbar on the rear wing mount. Large dirt shields are fastened to the channeled side portions of the chassis so you'll leave as much dirt on the racetrack as you can. On the subject of shields, a large center fence alongside the fuel tank provides a handy fuel-filter location and protects the brakes and servos from being drenched by overzealous helpers during pit stops. A 2.5mm graphite and glass laminated radio tray supports an enclosed radio box/switch mount, transponder mount and separate battery box on the right side of the buggy. This configuration makes post-race cleanup a snap because you'll only have to take off the servo-output arms and seven chassis hex-screws to remove all the electronics from the car.

• **Drive train.** The center bevel-gear differential is supported by aluminum standoffs, and it turns on rubber-sealed bearings. The diff housing is plastic, but it's attached to a steel spur. Dogbones run to the front and rear diffs. Constant velocity axles (CVAs)



You want brakes? We got your brakes right here. Four—count 'em, four—steel discs. Check out all of the graphite components and anodized accents.

run to the wheels up front and the dogbones in the rear. The Hyper 7 features four vented steel brake discs with fiber pads for optimum whoa.

• **Suspension/steering.** Large lower H-arms and wishbone upper arms make up the front suspension. Camber is adjustable, but you'll have to remove the ball end to set it; a turnbuckle would have been preferable in this application. The rear has an adjustable camber link on top and large lower H-arms with adjustable toe; the suspension uses hinge pins and E-clips for attachment through aluminum cross-braces. All four hub carriers are equipped with guards to protect the universals from becoming caked with crud—a great idea, especially for excessively muddy tracks. If you like to tweak your setup, the 4mm graphite shock towers boast five shock-mounting positions on top and two below for the front tower, while the rear has a 5-and-3 setup. The inner rear camber links have two mounting positions in front and four in the rear. Anodized-aluminum coil-over shocks with shaft boots smooth out the Hyper 7's ride, and clip-type inserts are used for preload adjustment. Swaybars are standard equipment; 2.3mm up front and 2.75mm in the rear. I enjoyed using the better part of a lunch hour to just drop the Hyper 7 from odd angles onto my desk and watch it land with about as much fanfare as a wad of wet Kleenex. The steering features a hefty two-piece bellcrank with an adjustable anodized tension preload; the entire system pivots smoothly on bearings.

• **Engine and accessories.** The Hyper 7 Pro doesn't include an engine, but a round port header, a tuned pipe, a three-shoe clutch and a bearing-supported steel clutch bell are supplied to complete the installation of whichever mill you choose.

• **Body, wheels, and tires.** I'll be the first to admit that I don't care for the overall all-business buggy look, but the Hyper 7 Pro is about as close as you'll ever get to a good-looking body. The engine and fuel-access holes are pre-cut, the windows are nicely recessed, and an overspray film has been applied, too. I airbrushed the color scheme with Parma FasKolor to match the wing, wheels and anodized hardware. One-piece molded white wheels that have an attractive, sweeping 5-spoke pattern come standard. They have a semi-gloss finish that complements the look well. The tires are short pins with soft foam inserts; they felt a little too spongy on initial inspection. Excessive throttle while turning will cause the inside front tire to balloon and hit the body.

Airtronics M8 transmitter and receiver

Airtronics' flagship 3-channel radio has loads of programmable adjustments and many usable functions. Best of all, they're easy to get to and set up. The transmitter is comfortable, well balanced and makes cool noises, too.

Airtronics 94102 throttle servo

Airtronics' standard-duty servo, with a reported 50 oz.-in. of torque, is certainly sufficient for throttle and brake duty. The servo has enough power to grab the four brake discs, so I had no concerns about the servo's ability to slow the car down.

Airtronics 94257 steering servo

If there's one place that you need to step up the torque, it's in the steering department. At 6 volts, the 94257 is listed at 110 oz.-in. of torque—more than enough to steer the Hyper 7 Pro around the track.

Trinity Monster Horsepower 25% nitro fuel

I've long been a believer in Monster Horsepower fuel. The 25-percent nitro content is a nice compromise between the demands of race and play, so it has become my primary blend.

OFNA/Picco 0-1 .21

After watching another 1/8 scale fly with the 0-1 OFNA/Picco engine, I had a very short "short list" of engine choices. After following the break-in instructions, I'm happy to say that this 0-1 delivered a repeat performance. The powerplant has good low-end grunt and quickly winds up to full song.

OFNA/MDP 1000mAh NiMH receiver pack

The Hyper 7 Pro comes ready to accommodate a straight 5-cell rechargeable pack. Six volts provide optimum servo response, and the 1000mAh pack has the power to get you through the long Mains.

THE COMPETITION*

	Chassis	Engine	Pipe/manifold	Clutch	Brake discs	Bearing type	Street price**	Reviewed
Kyosho Inferno MP 7.5	3mm	Not inc.	Not inc.	2-shoe	2 steel	Metal shielded	\$479	07/01
OFNA Hyper 7 Pro	3.5mm	Not inc.	Tuned/round port	3-shoe	4 steel	Rubber sealed	\$450	10/01
Mugen MBX-XR Works	3.25mm	Not inc.	Not inc.	3-shoe	2 steel	Rubber sealed	\$565	05/01
Thunder Tiger EB-4	3mm	Not inc.	Not inc.	3-shoe	2 steel	Rubber sealed	\$418	04/00

*Category is too large to list all competitive vehicles. **Approximate; price varies with dealer.

PERFORMANCE

I had planned to sneak out for some private track time because truthfully, I'm more adept at wheeling 1/10-scale trucks. My seclusion lasted only about 10 minutes, though, as the crackle from the OFNA/Picco 0-1 quickly gave me away. The stock pins



and soft foam inserts weren't the best choice for the freshly groomed dirt, but they did little to slow the Hyper 7. The car is well balanced in the air, and its overall well-mannered demeanor had me up to speed by the

time Steve and Kevin joined me to offer their "constructive" critiques. I had the most fun blasting down the main straight and then taking full advantage of the quad-disc brakes. During each lap, I advanced my braking point farther down the track, awed (terrified) by the ease with which the Hyper 7 Pro spooled up to full speed and then decelerated. I found the car to be much more forgiving than I had expected; even after entering corners completely out of shape, the chassis seemed to know what my original plan was. During my second tank of fuel around the circuit, lap times increased noticeably, so I pulled in for further inspection. The adjustment nuts for the brakes pads were a little tight, which caused the brakes to drag, so I let

things cool down before I took the car out again. We refired the engine, and I passed the transmitter to the guys for their respective input. Both agreed that the Hyper 7 Pro is certainly easy to drive.

THE VERDICT

For 1/8-scale competition, the chassis is very forgiving and durable; it's ideal for folks who want to graduate from .12- to .15-powered 1/10-scale trucks to the power of a .21 engine. The Hyper 7 has enough flex to come back smiling from skirmishes with the boards while you're climbing the learning curve. I've put it through a few inverted landings and cartwheels during my 1/8-scale education and am pleased to report that the corner marshals tire out before the Hyper 7 does. Overall the car is fun, predictable, durable and yes—good-looking, too. OFNA recognizes that *all* hobbyists lust after aluminum and graphite goodies and, therefore, didn't spare any of the trick stuff on the Hyper 7 Pro. It's a good learning tool that can probably get you to the podium, too. ■

SOURCE GUIDE

AIRTRONICS

1185 Stanford Ct., Anaheim, CA 92805; (714) 978-1895; fax (714) 978-1540; www.airtronics.net.

OFNA RACING

22692 Granite Way, Ste. B, Laguna Hills, CA 92653; (949) 586-2910; fax (949) 586-8812; www.ofna.com.

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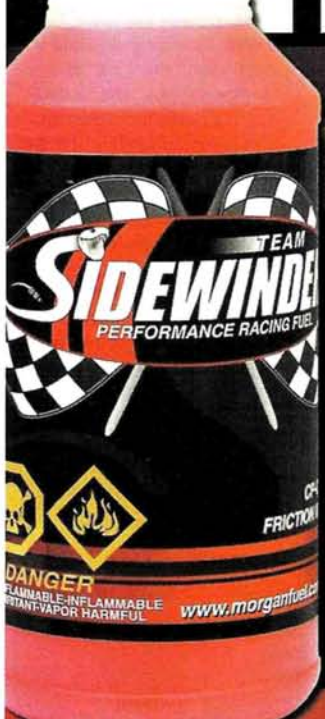
13927 Progress Pky., North Royalton, OH 44133; (440) 237-8650; fax (440) 237-6333; www.parmapse.com.

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**TRACK
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1/5-SCALE ELECTRIC



Nuova Faor **SF501**

Put a knee down, RC-style

by Derek Buono



Riding a real motorcycle is great;

it's almost a sure shot that you'll pick up chicks (or, for you women riders out there, impress a guy) as you roll through the city streets. Maybe that's what the Italian-based

company Nuova Faor had in mind when it produced its new SF501 $\frac{1}{5}$ -scale electric street bike. I can't promise that you will pick up the ladies, but you will definitely get some stares as you buzz around with this one-of-a-kind

machine. The SF501 is no plasticky toy; it's a serious piece of hardware, constructed of aluminum with a real chain drive and a highly functional suspension and wrapped in sleek rice-rocket-style bodywork. Will the ladies dig this ride? Let's find out!

DATA CENTER

VEHICLE TYPE $\frac{1}{5}$ -scale electric motorcycle

BEST BUYER Motorcycle fans, experienced drivers looking for a new challenge, anybody who wants something cool and different

KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Poor

Parts fit and finish Very good

Durability Good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER Nuova Faor

MODEL SF501 electric motorcycle

DISTRIBUTOR National RC

SCALE $\frac{1}{5}$

STREET PRICE \$349

DIMENSIONS

Wheelbase 12 in. (300mm)

Length overall 7.835 in. (199mm)

WEIGHT

Total, as tested 54.9 oz. (1,569g)

CHASSIS

Type Space frame

Material 2mm aluminum plate

DRIVE TRAIN

Type Chain drive

Primary 14T pinion/69T spur

Sprockets (F/R) 9T/36T

Drive ratio 4.9:1

Final drive ratio 14.2:1

Bearing type Rubber sealed

SUSPENSION (F/R)

Type Telescoping twin fork/single-side swing arm

Damping Friction/oil-filled, coil-over aluminum monoshock with threaded body

WHEELS

Type Machined-aluminum 3-spoke

TIRES

Type Rubber slicks

LIKES

- It's an RC motorcycle; how cool is that?
- Realistic chain drive.
- Rear suspension is silky smooth.

DISLIKES

- Instructions look as if they've been through the wash.
- The rider is not the best-looking rendition of a person (but as an "X-Files" mutant, he's dead-on).

This front view highlights the SF501's triangular profile of the front tire. You'll never see a real motorcycle tire shaped like this, but the unusual design is required to make the bike steer properly.



building & setup tips

The assembly instructions aren't very useful; the photocopied sheets and poorly translated Italian-to-English text are confusing. It's best to consider the instructions as a guide and not to worry too much about a literal interpretation of the text. A tuning guide is included to help you performance-tune the bike, but reading the translated instructions just reminds you that Italian is a beautiful language when spoken. Here is a quotation from the setup guide: "I hope to be able to make clair you the ideas, try, try, try and retry and bit by bit you will understand like is beautiful drive a radio control motorcycle." These tips will help you get the SF501 together with a minimum of hassle:

Loctite everything. The SF501 has a lot of fasteners that thread into aluminum; Loctite 'em or lose 'em.

Bag A. The illustration is reversed. If you assemble the side plates as shown, the motor mount will be on the wrong side of the bike. And yes, I had to disassemble the bike to fix that mistake.

Rear axle. The rear axle had a small burr that prevented the bearings from being slid on smoothly. After a quick filing session removed the burr, the bearings fit perfectly.

Front fork. The mounting bracket for the front fork looks slightly different from the instructions' illustration, but don't worry about it; there's only one piece in the kit that looks anything like the illustration.

Steering linkage. One of the instructions' blurry images shows that the extra-long steering linkage is supposed to use a dual-spring over-travel setup to absorb steering movement caused by road imperfections and to reduce twitchiness. The threaded rod that came in the kit was a few inches shorter than shown in the instructions, and consequently, the springs did not fit. So instead of using the springs, I installed short sections of fuel tubing.

Motor installation. Once the frame has been assembled it's hard to hold the motor in position to install, so you might want to install the motor before you've attached the left side of the frame. I haven't disassembled the bike to try this technique, but there are no apparent issues with installing the motor earlier.

Electronics installation. The instructions leave the final placement of the ESC and the receiver entirely up to the builder. I taped the ESC to the underside of the steering servo and parked the receiver under the seat to keep it as far away from the motor and battery as I could.

The front fork rake is adjustable. As the angle gets steeper, the bike reacts to steering inputs more quickly, and that makes it hard to drive. The steering damper is on the right side of the forks. To adjust the tension, add or remove O-rings.

YOU'LL NEED

- Transmitter and receiver
- Steering servo
- Electronic speed control
- Motor
- 6-cell stick pack
- Charger
- Polycarbonate-compatible paint
- Thread-locking compound

KIT FEATURES

- **Chassis.** The chassis—or frame, since we're talking bikes here—has three primary sections: a center section that holds the battery, ESC, steering servo, motor mount and spur gear; a steering bulkhead that holds the massive machined-aluminum support for the telescoping fork's triple clamps; and a tail section that serves as a mounting point for the rear monoshock, supports the rear of the body and gives the receiver a home.

Each section is constructed of 2mm-aluminum plate arranged in left and right halves separated by plastic cross-braces. The largest brace is configured as an open box to hold the steering servo. A stick pack is slung beneath the frame in a Lexan tray and held by three aluminum standoffs that pass through it. E-clips prevent the tray from rocking back and forth on the tubes, and rubber bands hold the battery. Music-wire outriggers keep both tires on the ground when the bike is at rest, so the bike can be launched without a rolling start; the outriggers also protect the body if you overcook a turn and dump it *CHiPs*-style.

- **Drive train.** The SF501 is equipped with a full set of rubber-sealed ball bearings for its realistic chain-drive system. Enclosed by the bike's frame, a kit-supplied 14-tooth pinion gear spins a 69-tooth spur gear; it is mounted on a 6mm shaft that does double duty as the pivot for the rear swing arm. This design prevents suspension movement from affecting chain tension as well as torque-induced rear suspension compression. The shaft also spins the 9-tooth drive sprocket, which is mated to a 26-tooth rear wheel sprocket via an authentic 6mm-pitch chain complete with master link.

- **Suspension and steering.** The SF501 borrows cutting-edge real-bike technology for its rear



An aluminum monoshock clamps the rear suspension. The threaded body is a nice tuning feature.

each bumper acts as the bottom-out stop, and suspension travel is adjusted by threading the screws into or out of the bumpers. Coil springs in the lower legs absorb jolts, but there isn't any significant damping. There's a lot of stiction in the system when the suspension is compressed straight up from the tire's contact patch, but the system is very active when subjected to front impacts. The fork also appears very durable; the 8mm-diameter stanchions are mounted on a massive, billet-aluminum steering spar with thick triple clamps.

The steering assembly is one of the bike's coolest features. The steering servo is connected to the forks by means of a long threaded rod. The front forks are steered directly by the servo, and a steering damper absorbs the shock of road imperfections that might otherwise deflect the front wheel and cause the bike to stray off course.

To tune the bike, the fork rake is adjustable. According to Nuova Faor, when the rake is angled more steeply (23 to 25 degrees), the bike is stable on the straights and reacts more slowly in the turns. If it is set for shallower angles (19 to 21 degrees), it becomes less stable in the straights and reacts more quickly in the corners. Those of you who understand motorcycle-steering geometry will think that sounds backward, but the SF501's unique steering geometry is an exception to "real bike" rules. As shown in the photographs, the SF501's steering pivot is in front of the stanchion tubes to provide a caster effect; full-scale motorcycles position the steering pivot behind the triple clamps.

An additional element of the steering system is the shape of the front tire; it has a pointed, almost triangular cross-section that helps the bike initiate turns. When traveling straight, the bike is upright and the front tire rides

KO Propo EX-11 radio system

I needed a radio with a fairly small receiver, since space was at a premium, so I went with my KO Propo EX-11 and its KR-297FZ receiver. The tiny receiver fits perfectly beneath the seat on the receiver deck. A full-size receiver will also fit, but not as nicely as a smaller receiver. The EX-11 has 3-model memory, digital trims, FM modulation, an easy-to-read dot-matrix display and dual rate for steering, which is required for this bike.



Airtronics 94102 steering servo

The 102 is Airtronics' standard servo, and it provides enough power and speed for most RC applications. The bike doesn't require much torque since the travel required is minimal. This proves that standard servos are very useful.

Trinity Time Warp 1900 battery pack

Even with a 13-turn double modified, this pack provided a good 15 minutes of two-wheel action. The pack is a trusty Ni-Cd, and it can be charged on any charger.

Trinity Retro Series Monster Mash motor

Don't let the "Retro" label fool you; this motor takes advantage of the latest technology to ensure high torque and rpm. The 13-turn double may be overkill for this bike, but I wanted it to be fast. The Retro Series motors all feature HVS wind for quicker spool-up, surface-mounted capacitors (no soldering), ball bearings and adjustable timing.

LRP IPC Sport ESC

There's no need for reverse on a motorcycle (unless it's a Gold Wing), and the economical, forward-only Sport was all the ESC I needed—maybe even more; its one-touch setup and adjustable traction control (current limiter) are bonus features.



The realistic chain drive gets power from the Trinity motor to the rear wheel. Check out the screw that adjusts chain tension.

TRACKTEST Nuova Faor Motorcycle

on the "point" of its tread. When the steering servo turns the forks, the front tire "falls" onto the sloped side of the tread, helping the bike turn.

• **Body, wheels and tires.** The key to an RC motorcycle's stability is the gyroscopic effect of its wheels, and with that in mind, Nuova Faor has equipped the SF501 with weighty wheels constructed of machined aluminum. The tires are also heavy and are made of thick, soft rubber; unlike a car, a loss of traction on a bike equals a total loss of control—not a cool, controlled slide.

Lexan sport-bike bodywork covers the frame, and it is generically styled so that it may be painted as the brand of your choice. The SF501's decal sheet includes a variety of logos for all the major Japanese and European makes; since Nuova Faor is an Italian manufacturer, you might want to go with Aprilia or Ducati.

The rider figure is also made of Lexan and was the only real disappointment of the SF501 package; let's just say that great liberties were taken with the human anatomy. In addition to his dubious proportions, the rider is also difficult to assemble—at least if you want it to look good. The halves don't fit together very precisely, and the tape-together construction is unwieldy.

PERFORMANCE

Don't expect to master this bike on its first run. In the small parking area I first tried to run on, it was very hard to get the bike to stand up. My first problem was that the steering was the reverse of what I am used to. To get the bike to stand up, you have to steer into a turn and make a large circle. Because of the gyroscopic effect of the heavy wheels, only then would the bike stay upright. This was different from turning on a real bike where you have to turn the opposite way to get the bike to roll to its side. This took some getting used to, and consequently, I gave the side rails a substantial ride on the pavement.

Once I got the bike up to a decent speed, it was more graceful and easier to control. It took only fine inputs to maneuver the bike around the lot. I found out that a hard tap on the brakes would send the bike over onto its side fairly quickly, and learned quickly that only light braking was required. The suspension seemed to do a good job; the bike didn't bounce and wasn't bothered by small cracks and other imperfections in the pavement. Once I got a few

packs through the bike, I was more confident with its handling and could make much tighter turns and keep it upright almost for an entire run.

It was an absolute blast to maneuver the bike through S-turns. Watching the bike lean from one side to the other was just as much fun as testing the tires' traction limits. When driving hard through a turn and getting on the throttle, I could get the back end to hop fairly easily. The relatively soft spring rate caused the back end to bounce if I went in too hot.

If you want to get the most out of this machine, head for a big open lot so you can motor free of obstacles and practice pushing the bike to its edge.

THE VERDICT

No matter how complete your mastery of RC car driving is, the SF501 will present new challenges, and that's part of the bike's appeal. When you learn to carve knee-down turns and can put the bike anywhere you like on the parking lot, you'll feel like an RC Jedi Master. As you learn, you'll no doubt give the bike some hard knocks, but its rugged aluminum construction and Lexan bodywork (we all know how tough that stuff is) will take it all in stride. Detailed body fairings look like the real deal, but the driver figure could use a little help. Just put down a factory-look paint job, and you'll have one bad-ass-looking bike that will attract a lot of attention wherever you go. Whether you end up with a girl on the back or not, well, that's still up in the air. ■

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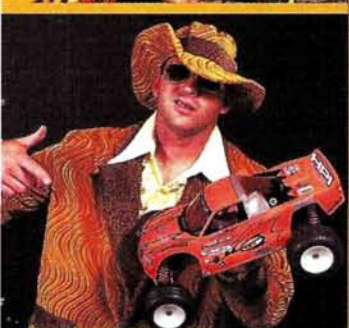
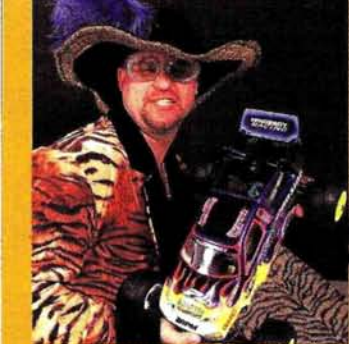
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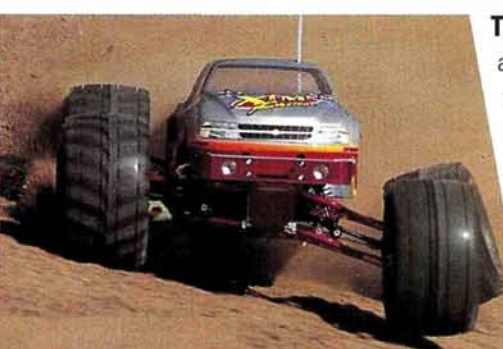
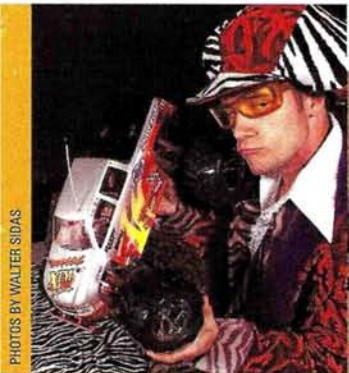
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MEGA-BUCK TRUCKS

BIG PIMPIN' WITH ASSOCIATED, HPI, AND TRAXXAS



The goal was simple: build three really trick trucks with as many aftermarket doo-dads as possible. The fewer stock parts, the better. When the wrenches stopped turning, the end results were wild indeed. Bright, expensive and way over the top, we wondered exactly what type of person would build these trucks (magazine editors excepted). The answer? Antonio Fargas, the erstwhile Fly Guy from Keenan Ivory Wayans' immortal classic movie, "I'm Gonna Get You Sucka." (Fargas played the old-school hustler with aquarium-sole platform shoes, remember? Do you even watch movies?) We felt these trucks matched Fly Guy's classic '70s player style, so we donned appropriate attire (did you think we had those clothes in our closets?), kicked up the bling-bling for the pics and had some fun.



Team by Kevin Hetmanski Associated RC10GT

The RC10GT started the now very popular gas-truck racing class, and it is a well-established and well-respected racer. In the years since its release, a deep well of aftermarket parts has become available. In fact, there are so many parts offered that you can build an RC10GT with almost no stock parts on it at all! That seemed like an interesting theme for a project, and it led to what you see here: an RC10GT that, technically speaking, isn't really a Team Associated RC10GT! Special thanks to Razor Graphics for painting the body.

➤ Below: the GPM aluminum gearbox, filled with Robinson Racing titanium top shaft, hardened-steel idler gear and aluminum diff gear.

Most Pimpin' Part



Above left: Progressive Suspension piggyback reservoirs not only look great, but they also smooth out the suspension. I used MIP CVDs to drive the Treadz rear tires and wheels on my truck. These CVDs are very smooth and can be completely rebuilt. RPM heavy-duty rod ends ensure that I never pop off a link and Lunsford titanium tie rods keep my camber and toe settings true throughout a race. Above right: I could have used aluminum suspension arms, but I decided to stick to the stock arms. All the aluminum parts that I added made it much heavier than stock, so the lightweight arms help bring my GT closer to its original fighting weight. To improve steering, the GPM hub and HG ti axles have very little flex.



Chump Change
\$2,746

ON THE TRACK

I have a lot of laps on a relatively stock GT, and I have found a setup that works very well for me at our local track, so I used the same settings for my project GT. As expected, it handled just like my stock truck, but the project machine was better in other areas. Braking is much smoother and more reliable, and the front-fill fuel tank sped up my pit stops; in an hour-long Main, those seconds add up. Speaking of long Mains, my non-Team Associated GT is virtually unbreakable thanks to its titanium chassis and the aluminum hubs and rear bulkhead.



KIT

- Team Built Associated RC10GT-7050; \$219.

CHASSIS AND SUSPENSION

- GPM
 - Front C-hub bushing—RGT1906 (blue); \$25.
 - Rear hub carrier—RGT22 (blue); \$25.
 - Lower shock mount—RGT5606M (blue); \$10.
 - Front body-mounting posts—RGT20106F; \$10.
 - Front body-mounting brace—RGT20106M (blue); \$20.
 - Rear body-mount supports—RGT20106R; \$20.
- GS Racing
 - Servo horn set for A/JR/KO/MX—GSCSH720BL (blue); \$3.95.
 - Countersunk aluminum washers (3mm/4-40)—GSCW120BL; \$3.95.
- Hangar 9
 - Machined half servo arm—Han3531; \$8.
- Hardcore Racing
 - Titanium chassis—HCR-00200; \$135.
 - Titanium shock towers (F/R)—HCR-00201/ HCR-00202; \$38/\$45.

GS Racing

- Servo horn set for A/JR/KO/MX—GSCSH720BL (blue); \$3.95.
- Countersunk aluminum washers (3mm/4-40)—GSCW120BL; \$3.95.

Hangar 9

- Machined half servo arm—Han3531; \$8.

Hardcore Racing

- Titanium chassis—HCR-00200; \$135.
- Titanium shock towers (F/R)—HCR-00201/ HCR-00202; \$38/\$45.

HG

- GT titanium front axles—4100; \$21.99.
- Titanium short ball ends—8310; \$9.99.

Lunsford

- Tumbuckle kit for RC-10T2/GT/T3—2012; \$32.50.

Progressive Suspension

- 1/10 scale piggyback reservoirs (4-piece set)—PBR-1002BL; \$62.50.

RPM

- Mini bumper for 10T/T2/GT-70725 (neon blue); \$3.95.
- Heavy-duty rod ends 4-40 (12)—73375 (neon blue); \$4.95.
- Spring cups for Team Associated shocks—70255 (neon blue); \$2.95.
- Nylon nuts—70802 (black); \$1.25.

Team Associated

- Lightweight aluminum screw set—7675; \$17.
- Unobtainium shock shafts, F/R—6417 (1.02-stroke); 6416 (1.32-stroke); \$6.
- GT titanium hinge-pin set—1620; \$18.

Trinity

- Universal servo mounts (pair)—TK5049; \$19.99.
- Heavy-duty front tube mounts (pair)—TK5067; \$27.50.
- Rear suspension mounts (pair)—TK5055; \$39.99.
- Rear bulkhead—TK5051; \$42.50.

DRIVE TRAIN

Dynamite

- RC10T/GT/RC10GT ball bearing (set)—DYN3505; \$44.96.
- RC10GT clutch ball bearing (set)—DYN3506; \$7.95.

GPM

- Rear gear case—RGT1306; \$70.

Hardcore Racing

- GT-10 carbon disc brake—HCR-00203; \$25.

MIP

- Shiny CVD kit for RC-10T2/GT/T3 with 3/16 in. axle—1197; \$37.50.
- 4-N-1-clutch kit for RC10GT-3012; \$11.95.
- Heavyweight flywheel for RC10GT-3019; \$12.
- Thrust rebuild kit for Team Associated cars and trucks—1122; \$5.95.
- Super diff rebuild kit for RC10GT-3014; \$10.95.

Robinson Racing

- Team Associated top shaft—RRP1512; \$16.
- Hardened-steel idler gear—RRP2213; \$12.99.
- Hardened-steel diff gear—RRP1513; \$16.
- RC10GT steel combo—RRP2365; \$31.99.
- Lightened slipper kit with pads—1515 (blue); \$30.

Trinity

- Heavy-duty lower transmission brace—TK5065; \$22.50.
- Titanium brake hex hub—TK1300; \$14.99.
- Upper transmission brace—TK1500; \$23.99.

ELECTRONICS

Airtronics

- M8 transmitter—90280TX; \$314.
- Throttle/brake servo—94102; \$24.
- Steering servo—94737; \$109.

Trinity

- Nitro Metal Hydride receiver pack—RC5301; \$35.

ENGINE AND ACCESSORIES

Losi

- Throttle-return spring and eyelet—A-9409; \$3.

GS Racing

- Ultimate molded-silicone exhaust coupler—GSCCMS10BL; \$2.95.
- Silicone fuel tubing (3 feet medium-diameter)—GSC24523SBL (solid blue); \$1.95.

MIP

- Off-road side header (non-pull-start)—3048; \$24.50.

Team Associated

- Front-fill fuel tank—7721; \$14.

Trinity

- Trinity/Picco standard-exhaust .12 engine—TP095; \$134.99.
- Monster Horsepower Picco Blend 20% nitro fuel (gallon)—MH4020; \$29.
- Trinity/Picco .12 Pro pipe—TP7230; \$44.99.

BODY, WHEELS AND TIRES

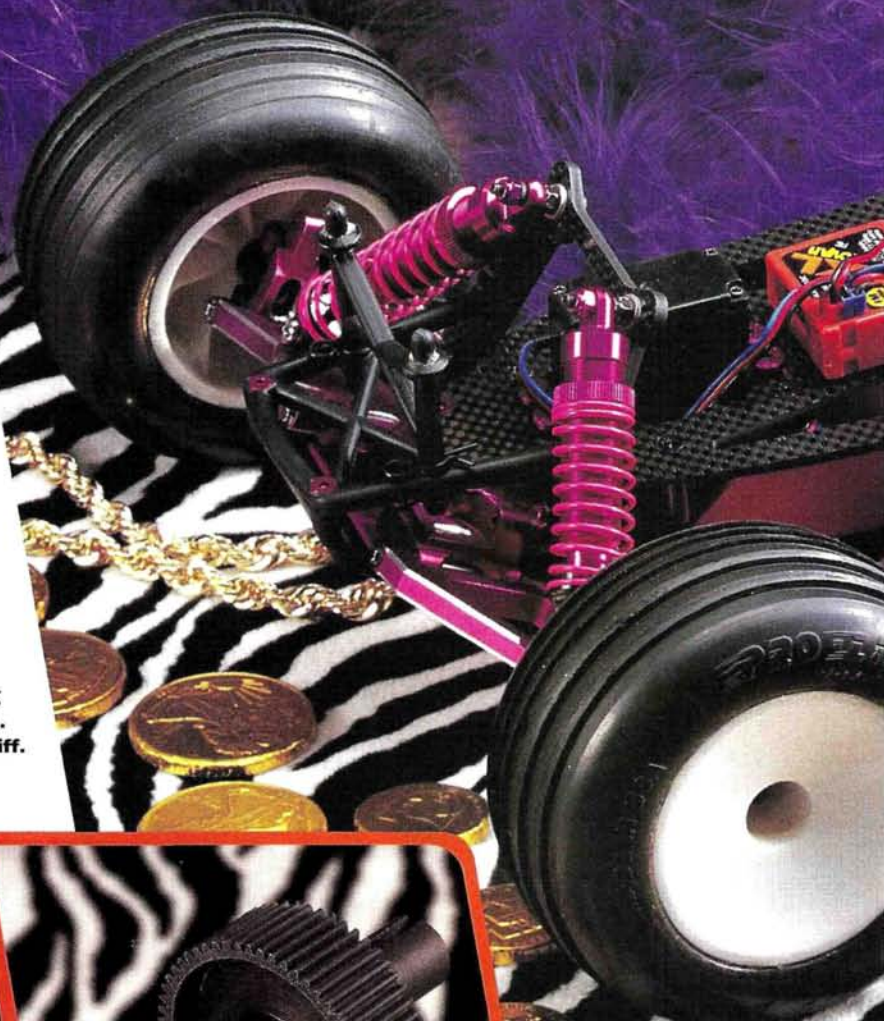
Pro-Line

- 2001 GMC Sierra factory team body—3109-00; \$23.
- Treadz
 - Cutter front tires—TFX1A; \$24.50.
 - Magic rear tires—TFY2A; \$24.50.

HPI by Derek Buono NITRO RUSH

My HPI Nitro Rush is a great 2WD sport truck, and it has taken a severe beating from some of the neighborhood rookies. Yet, even full-throttle run-ins with the curb haven't stopped the Rush from screaming around my streets. The stock Rush has a very athletic stance, and with a few upgrades, it can be a real performer on the track and can hang with the competition 2WD nitro racing trucks. I set out to build the ultimate racing Nitro Rush and lay out some punishment at the track. Oh, yeah; I had to include some eye-candy as well. There is never enough purple aluminum in there?

Below left: the aluminum GPM front bulkhead can shrug off hits that would have popped the stock plastic piece. Below right: the HPI ball diff replaces the stock gear diff. The hardened-aluminum outrdrives can take a lot of punishment on the track.



Most Pimpin' Part

➔ HPI Graphite upper deck. Woven carbon fiber makes anything look trick, especially when replacing plain ol' plastic.

A graphite rear shock tower rids the Rush of its molded plastic tower and increases rigidity and suspension action.



Chump Change
\$1,656

ON THE TRACK

Get out of the way! The 15 FE with its new head seemed to be faster; maybe it was the new 'do, but the engine ran cooler. The combination of HB RC Option Parts aluminum shocks and 30WT oil stiffened up the suspension to deliver the handling precision that the cushy-soft stock setup lacked. This translated into better reaction time and faster laps. Thanks to the Pro-Line rubber, traction wasn't a problem, and the Rush roosted like a CR250. The added durability of the GPM aluminum front bulkheads and rear suspension brace mounts will keep it churning dirt for a long, long time, and that's good, because I nearly ran the wheels off it in stock form, and this "ultimate" version will get even more transmitter time.



KIT

- HPI Nitro Rush—PN564; \$225.

CHASSIS AND SUSPENSION

GPM Racing

- Aluminum front bulkhead—RH1008; \$40.
- Rear suspension mounts—RH1011; \$20.
- Front C-hubs (pair)—RH1019; \$25.
- Front arms set (pair)—RH1055; \$30.
- Rear arms set (pair)—RH1056; \$30.

HB Racing

- Threaded aluminum shocks (pair)—25011 (purple); \$30.

HPI

- Stainless-steel hinge-pin set—72200; \$7.
- Graphite front shock tower—73030; \$24.
- Rear shock tower—73035; \$24.
- Titanium turnbuckle (set)—72220; \$35.
- Graphite upper deck set—73020; \$42.
- Ball-diff set—72185; \$48.

RPM

- Heavy-duty rod ends 4-40 (12)—73392; \$4.95.

DRIVE TRAIN

GPM Racing

- Rear gearbox brace—RH1015; \$25.

MIP

- Shiny CVDs—80815; \$38.

ELECTRONICS

Airtronics

- M8 transmitter—90280TX; \$314.
- Steering servo—94357; \$170.
- Throttle servo—94737; \$110.

Novak

- XXL FM receiver—2475S; \$104.

Trinity

- Nitro Metal Hydride receiver pack (1100mAh)—\$39.99.

ENGINE ACCESSORIES

HB Racing

- Aluminum heat sink—20000 (purple); \$45.

HPI

- Nitro racing clutch—A885; \$15.
- Fiber brake disc—A844; \$14.

Losi

- Raised exhaust manifold—LOSA9321; \$14.

OFNA

- 6-ring tuned pipe—10064; \$34.95.

Trinity

- Monster Horsepower Picco Blend 20%-nitro fuel—MH0020; \$11.99.

BODY, WHEELS AND TIRES

HPI

- Nitro Rush body—7175; \$24.

Pro-Line

- Edge front tires—8096-01; \$18.50.
- Hole Shot T rear tires—8192-01; \$18.50.
- Velocity dish wheels (front)—2635-00; \$7.50.
- Velocity dish wheels (rear)—2636-00; \$7.50.

Team Orion

- Thunder body decals—59025; \$10.

Trinity

- 2-Stage truck firm inserts (pair) F/R—TK1519; \$4.50.

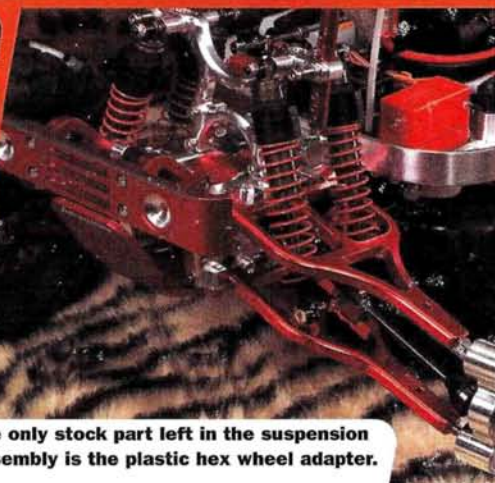
Traxxas by Greg Vogel E-MAXX

There have been all kinds of Traxxas T-Maxx projects in the mag, but we haven't blown up the T-Maxx's electric brother—the E-Maxx—as much. I hope my project was worth the wait! I gave our “Truck of the Year” E-Maxx a makeover with every hop-up option I could find—all with a red-and-silver motif. Did I choose parts that increase performance? Durability? Glitz? The answer is yes. Check out the collection of parts that became the ultimate E-Maxx project.

Below left: I installed ball bearings in the steering bellcranks for super-smooth steering. The Dynamite diff cases are hot! **Below right:** I got a little carried away with my new sandblast cabinet. The ESC heat sinks and Trinity motor plate got the glass-bead treatment, and the ESC case was subjected to a bath in black fabric dye.



➔ **Hardcore** T-6 aluminum chassis. The polished T-6 combined with the red Dynamite and XTM parts looks sweet; this truck is solid.



Most Pimpin' Part

The only stock part left in the suspension assembly is the plastic hex wheel adapter.



Chump Change
\$2,779

ON THE TRACK

The stock E-Maxx was built with one thing in mind: maximum action! So, after I had built the project vehicle and had sucked the life out of countless packs, what do I think? I think the description "maximum action" is an understatement. The tricked-out E-Maxx ripped stuff up. (Hey; it's a family mag and I have to watch my language.) With all the aluminum goodies, my mind was at ease when I launched the truck off 6-foot BMX jumps and 10-foot berms. I'm not saying that the stock E-Maxx is weak, but aluminum is just about crash-proof. Let me tell you, there were some ridiculously hard landings that drew wincing gasps of disbelief from the guys at the track, but there wasn't one broken part to be found. Ripping the truck through gravel and into mud was a total blast. This red and silver monster attracted a large crowd and didn't disappoint anyone with its trick-looking Dynamite, Hardcore and XTM parts. I'm sure you're grilling the pictures, too. So, what are you waiting for? Shouldn't you be planning a project like this?



KIT

• Traxxas E-Maxx RTR—3906; \$359.99.

CHASSIS AND SUSPENSION

Adrenaline

• Front and rear skidplates—ADR003RD; \$49.99.

Dynamite

Aluminum

—lower chassis braces—DYN7603; \$32.95.
—skidplate—DYN7604; \$9.95.
—steering cranks—DYN7608; \$18.95.
—bumpers (F/R)—DYN7611/DYN7612; \$32.95.

Hardcore Racing

• Aluminum shock tower—HCR-00312; \$49.
• Bulkheads (F/R)—HCR00315/HCR00316; \$89.
• Titanium pillow balls (4-piece set)—HCR-01504; \$35.
• T-6 aluminum chassis—HCR-00330; \$199.
• Steering blocks—HCR-00312; \$59.

Lunsford

• Turnbuckle set—12750; \$24.99.

Traxxas

• Aluminum Big Bore shock kit—4962; \$99.99.
• Ball bearings for steering bellcranks (pair)—2728; \$8.
• Titanium suspension pin set—4939(R); \$24.

XTM

Aluminum

—(F/R) body mount—32209/32210; \$19.99.
—chassis braces (pair)—32213; \$29.99.
—upper/lower arms (pair)—32211/32212; \$29.99.

DRIVE TRAIN

Dynamite

• Aluminum gearbox set (one case)—DYN7600; \$42.99.

Kimbrough

• 70T TRX spur gear—370; \$4.

MIP

• CVD drive axles for Traxxas Maxx (pair)—1485; \$55.
• CVD center drive shafts for Traxxas Maxx (pair)—1486; \$55.

Robinson Racing Products

• Differential gear set—8590; \$42.50.

Traxxas

• Lightweight input shaft/drive gear assembly—3993X; \$13.99.
• Lightweight aluminum idler gear shafts—3994X; \$10.99.
• Idler gear shafts—3995X; \$3.99.

Trinity

• Motor-mounting plate—TK5117; \$18.99.

ELECTRONICS

HB Racing

• Sport packs—HB 2400; \$49.99.

JR Racing

• R1 transmitter and receiver—JRP3140; \$399.

Multiplex

• Servo—65138; \$76.50.

Reedy

• BaddMaxx Wild 15-turn motor—297; \$39.99.

BODY, WHEELS, AND TIRES

Pro-Line

• Chevy Silverado body—3100-00; \$26.
• Maxx Masher tires (pair)—1075-00; \$29.

RPM

• StableMaxx chrome Monster Clawz (pair)—81923; \$16.95.

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4913 Revlon Dr., La Canada, CA 91011; (818) 790-0713.

NOVAK ELECTRONICS INC.

18910 Teller Ave., Irvine, CA 92612; (949) 833-8873; www.teamnovak.com.

OFNA RACING

22692 Granite Way, Ste. B, Laguna Hills, CA 92653; (949) 586-2910; www.ofna.com.

PROGRESSIVE SUSPENSION

11129 G Ave., Hesperia, CA 92345; (760) 948-4012; www.progressivesuspension.com.

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P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; www.pro-lineracing.com.

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Unit 1-C
Tustin, CA 92780

Kimrough

by Greg Vogel and Derek Buono

Team Losi Dominates ROAR Stock Off-Road Nats

Drivers from all over the country gathered at CRCRC Raceway in Columbus, OH, for the 2001 ROAR Off-Road Stock Nationals. Many new and talented drivers ran in all five classes, but when the dust had settled after the Mains, Losi's crew and drivers came out on top. Drew Loftus took the Junior Buggy class, Torry Hadley won in the Masters Truck division, Jason Ladow took top honors in the Stock Buggy class, Eric Clark won Stock Truck and Jonathan Noon completed Losi's winning streak with a victory in 4WD. Congratulations to the participants, the winners and the track officials on a well-run, exciting race. Stay tuned to the next issue of *Radio Control Car Action* for an in-depth race report.



DESERT DRAGGIN'

Team Associated's Mike Ogle recently competed in the Xtreme Chaos Nationals, and he provided this coverage of the event, held in Rialto, CA.

Although many classes compete at Rialto, what gets the most attention are the big guns of $\frac{1}{4}$ scale; the 7-foot-long, 30-pound Top Fuel cars. These babies run the 165-foot strip (a scale $\frac{1}{8}$ mile) in just about 3 seconds flat at speeds approaching 70mph. The class features cars with everything from 23cc engines all the way up to Wade Savage's wicked twin-cylinder 80cc dragster. Ken Jones, MHRA's race director and his son, Ken Jr., campaign what is currently the hottest dragster in the organization, and they took top honors in Top Fuel with a 3.130-second run over the 3.352 of Bill Cain's Winston look-alike car.

Funny cars were well represented, too, with several manufacturers and engine combos such as Larry Cross's 23cc tube-framed funny car that debuted at Rialto with Top Fuel pilot Alex Lutkus doing the driving; Bill Cain's beautiful 70cc "Toys for Big



Boys" funny; and yours truly's scratch-built Solo-powered funny car, which eventually won the class when Bill Cain's car crossed the centerline.

Pro Stock was another hotly contested class, with Ken Sr., Gordon Ellwood and Don Foos topping the qualifying. These cars are pretty much based on the QSAC-style oval stock cars, with full suspension and all, but they're tweaked for draggin'.

In addition to the $\frac{1}{4}$ -scale monsters, there are usually $\frac{1}{8}$ -scale, .21-powered nitro dragsters like Craig Roberts' yellow New Era car, seen in the latest issue of *RC Nitro*; some electric cars (which are unbelievably quick—would you believe over 90mph!) and even some monster trucks attempting the speed traps. Wanna know how fast your car really is? Bring it out to Rialto and give drag racing a try. For more information, directions and a racing schedule, visit www.quarterscalemtrsports.com on the Web.

If you are attending or promoting an event that you would like considered for "Racer News," contact Derek Buono at derekb@airage.com, or write to Derek at Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.



Tires from General Silicones

General Silicones has inked a deal to distribute Medial Pro and Arrows tires. In addition to the well-respected Euro-rubber, General Silicones has picked up the Fioroni line of option parts that includes tons of aluminum aftermarket accessories for the Kyosho MP series as well as complete Torsen-style diffs for all of the popular $\frac{1}{8}$ -scale off-road buggies.

Spashett Rules $\frac{1}{12}$ -scale Euros and Touring Car Euros

David Spashett recently took his fifth $\frac{1}{12}$ -scale Euro championship in Ingolstadt, Germany, where he was also the top qualifier with his LRP-equipped, Trinity-powered Switchblade 12. Sakke Ahoniemi of Finland and Mikael Fransson of Sweden followed David onto the podium in second and third places. Soon after the $\frac{1}{12}$ -scale event, David won the Touring Car Euros with his Trinity-powered Losi Triple-XS.

SITE SEEING



HTTP://WWW.RCMOVIES.COM

These are some of the best online RC videos we have come across. The vids showcase the Australian-based team's RC collection, with Tamiya Rally cars and Traxxas T-Maxxs throwing some roost. Each video is choreographed to the soundtrack with excellent editing. Rcmovies.com plans to release a video called "RC Fury" soon and is currently filming in the U.S.

SPEED SHOP



Corally matched packs

Corally offers a full line of matched, unassembled race packs with Sanyo 2400mAh and 3000mAh cells as well as the new Powers GT 3000 cells. Each pack is matched using Corally's Virtual Race Simulator (VRS) matching process, which Corally claims simulates racing conditions by alternating high and low current peaks and longer average discharge loads. Every matched pack comes with a full set of battery bars and Corally-style connectors.

Corally; distributed by Specialized RC Intl., 1480 S.R. 436, Casselberry, FL 32707; (407) 681-5906; www.corallyusa.com.

Sanyo VRS matched 6-cell Pro (2400/3000)—COR42325/COR42525; \$94.50/\$104.50.

VRS matched GT3000R Powers Pro Team 6-cell—COR42625, \$114.50.

Pro-Line Cell Block 1/8-scale tires

Pro-Line's new Cell Block tires feature a tread that's designed for maximum forward and side bite on hard-packed clay, or "blue groove,"-type surfaces. They're available in soft (but durable) XTR and super-soft M2 compounds, and firm, low-roll inserts are included.

Pro-Line, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781;

www.pro-lineracing.com.

Cell Block (XTR/M2)—9016-00/9016-01; \$21/pair.



Schumacher TC wheels and inserts

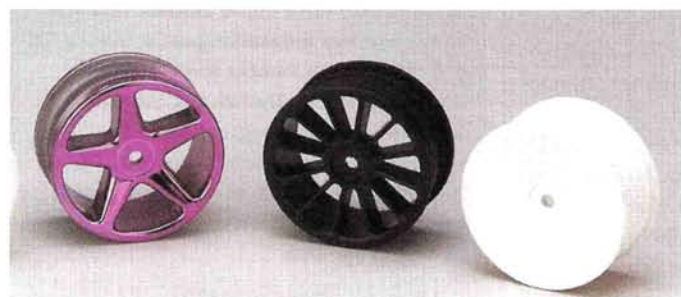
Schumacher offers a complete line of touring-car wheels that will fit any of today's popular touring cars. Four styles—5-spoke, dish, Y-spoke and 12-spoke—are available in four colors, in 1 and 2.5mm offsets and 24 and 25mm widths. The new foam inserts are molded from low-mass foam. These lightweight foamies weigh a feathery 1g each—a saving of 7g per insert! Some hand-fitting is required to get the perfect fit, but the weight reduction is worth it. They are available in firm, medium

and soft compounds.

Schumacher USA, 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634; (813) 889-9691; www.racing-cars.com.

Molded inserts (soft/medium/firm)—U6700/U6699/U6698; \$3.99/pair.

Schumacher touring-car wheels—part nos. vary with offset and width; \$5.99/pair (\$7.99 for purple chrome).



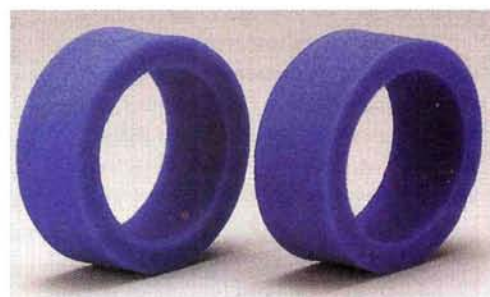
Elite receiver packs and charger

The 1000mAh receiver packs offer lasting power for those long Mains and high-torque servos. They are available in the standard 5-cell hump and flat-pack configurations. Elite's new MH-C210 DC micro charger will charge receiver packs and transmitter packs that are either Ni-Cd or NiMH. To charge from 2 to 10 cells, choose charge rates of 900 or 500mA.

Elite; distributed by Ultimate Hobbies, 2378 N. Orange Mall, Orange, CA 92665; (714) 921-0322; www.ultimatehobbies.com.

5-cell receiver pack (hump/flat), \$19.99.

MH-C210 charger—MHC210, \$34.95.



Team Orion lap-counting system

Team Orion and Alex Racing have teamed up to offer their new Lap-Counting System (LCS) with updated software. The personal lap counter replaces the trackside stopwatch method with a high-tech, infrared beam that keeps time down to 1/100 second. Its alarm lets you know whether you are hitting the target time you pre-set. The LCS system can be linked to your PC via an optional data link so you can see graphical data of your lap times.

Team Orion Inc., 22601 La Palma, Ste. 103, Yorba Linda, CA 92877; (714) 694-2812; www.team-orion.com.

PRO Lap Counting System—ORI36000, \$227.50.

Additional transponder—ORI36010, \$52.50.

PC link and software—ORI36020, \$69.99.



Yokomo mini temp gun

Yokomo now offers a new mini temp gun that will help you prevent your nitro engine from overheating. The gun clearly displays data on its large LCD screen, which has optional backlighting for after-dusk driving. A laser pointer allows you to see from which point it is taking the reading, and the temperature can be displayed in Celsius or Fahrenheit. The unit includes a protective case and 9V battery.

Yokomo USA, Airport Business Center, 17951 Skypark Cir., Ste. K, Irvine, CA 92614; (949) 252-8663; www.yokomousa.com.
Mini infrared thermometer—SK-8700, \$130.



Yokomo front anti-roll bar for GT-4



The new anti-roll bar for the GT-4 allows you to fine-tune the front suspension. The cantilever-style roll bar is mounted on the chassis and is machined of solid aluminum. It has been left in its natural finish so it matches all the Yokomo aftermarket parts currently available for the GT-4.
Front anti-roll bar kit (GT-4)—ZE-412F, \$44.



HG aluminum GT rear arms

HG's precision GT arms are computer-designed and machined from lightweight aluminum for increased durability. HG claims that extra rigidity prevents the arms from twisting and allows the shock to do all the work, which results in more consistent handling and improved lap times.

HG, 6 Tower Heights, Albany, NY 12211; (518) 782-9255; www.1hg.com.
Rear arms—3432, \$39.95.

TRACK THREADS

Schumacher Team Tees

Show your Shuie pride by wearing the Schumacher team T-shirt. The light gray shirt sports the Team logo on both the front and back. It's available in sizes L, XL and XXL.

Schumacher USA, 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634; (813) 889-9691; www.racing-cars.com.
Schumacher team T-shirt (L/XL/XXL)—G318L/G318X/G318Z; \$17.99/\$17.99/\$19.99.



5 QUESTIONS

Age: 22

Sponsors: Team Losi,
Team Orion, LRP,
Airtronics, MIP,
Lunsford, On Track
Graphics, Dirt Bagz,
Thunder Designs and
GS Racing

Last big win: Open
Modified at the Reedy
Touring Car Race of
Champions

When I'm not racing:
I'm sleeping or working
as an electrician.



**Jason
Corl**

Radio Control Car Action: We hear you're an electrician. Does your boss cover for you and allow you to take weeks off during racing season? Do people have to wait until you get back from a race to get their lights turned on?

Jason Corl: I race quite a bit, and this summer, I had to go to four consecutive races across the country, so I took considerable time off from work. Luckily, my boss is a friend of the family who is very understanding.

RCCA: You just won the Reedy TC Race Open class with a brand-new car [the Team Losi Triple-XS], and you aren't even a full-time on-road guy. Are you psyched?

JC: I have to give credit to Gil for designing a car that is very easy to drive. Next year, I'll be in the Invitational, so we'll see how I fare. I was very pleased with the car and was amazed by its efficiency. After a five-minute qualifier, the brushes didn't even look as if they'd been run, and those were race brushes that we usually change after one run.

RCCA: If you were marooned on an island and had to choose between Britney Spears and Christina Aguilera to keep you company, which one would you choose?

JC: Are you crazy? Britney for life! Isn't she every man's dream? Wait; could I change that and have Britney, Christina and Mandy all together?

RCCA: The ROAR Nationals were run with spec off-road tires for the first time. What's your take on that?

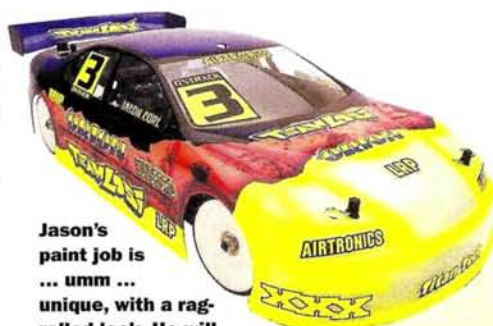
JC: In my opinion, spec tires don't belong at the Nationals or the Worlds. Companies spend a lot of money trying to get their products into the winners' circle. At this level, a company should have the choice of running what they want and allowing their drivers to win with their sponsors' products. There should be a spec class where this is all tied together.

RCCA: OK, Mr. Electrician: what's the highest voltage you've ever been shocked by?

JC: I've been in the trade for about six years, and I try to avoid getting jolted. I have been hit by a hundred and twenty volts, but nothing more; you really have to pay attention to what you are doing.

UNDER THE HOOD

JASON'S WINNING REEDY SETUP



Jason's paint job is ... umm ... unique, with a rag-rolled look. He will also sponge-paint your bathroom in the same paint scheme for \$10.95 a square foot.



MODIFICATIONS

"I added lead weight to the top of the front bumper and a 0.061 front swaybar to smooth out the steering and make the car easier to drive through the track carousel sections. I also cut some titanium-nitride shock shafts to use as hinge pins. The shock shafts' titanium-nitride surface is ultra smooth and makes the suspension much smoother. I also used a front one-way to get extra speed in the corners, but the kit comes with a standard ball diff. Another option that should be available is a spur/pulley adapter so you can use standard spur gears instead of the stock molded unit."

EQUIPMENT

MOTOR: Orion Chrome Modified 10-single
RADIO SYSTEM: Airtronics M8
STEERING SERVO: Airtronics 94755
ESC: LRP Quantum
RECEIVER: LRP Phaser
BATTERY: Team Orion
TIRES: Pro-Line H13
RIMS: TRC
INSERTS: Echo Blue
BODY/WING: Protoform Vauxhall/Opel Vectra
PINION/SPUR: 28/124

JASON'S STANDARD SETUP

	FRONT	REAR
Toe	0°	-1°
Ride height	4.5mm	4.5mm
Camber	-1.5°	-1°
Camber-rod locations (hub/shock tower)	-/1 out	Inside/3rd out
Caster	Stock	—
Swaybar	0.061	None
Ackerman location	Standard	—
Battery position	Forward	—
Shocks		
—fluid	60WT	50WT
—piston	57	56
—springs	Purple	Silver
—mounting location (upper/lower)	3rd out/fixed	Outside/outside

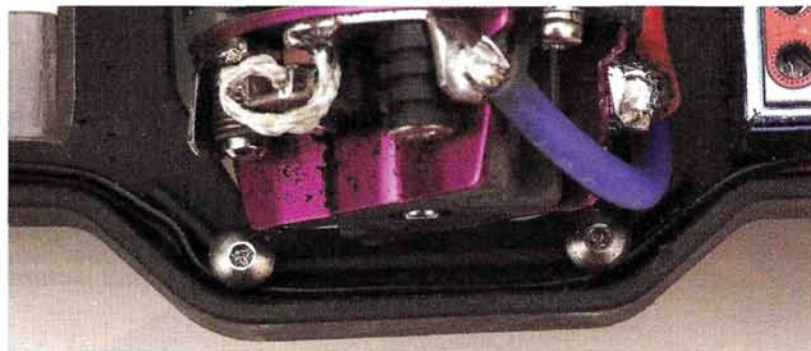


FACTORY DRIVER HOT MOD

Here's a little something that's more of a precaution. If you use small washers such as these aluminum jobs, they will prevent the shock bottom from popping off the ball.



You can see the polished titanium screws Jason used throughout his car. He chose parts that would lighten the car as much as possible; he even used plastic drive hexes. Notice that the Triple-XS uses a captured hinge-pin design—no more stinkin' E-clips!



The Triple-XS is one of the first TCs to feature specific routes for the power and ESC wires. The two screws shown here keep the ESC leads flat on the chassis.

LAST LAP

Josh Cyrul says, "I'm for foams on all touring cars." What do you think?

I definitely need foam under the chrome so on that last stretch, we can take it home, baby!

—Mario Argentina

I think they should have a foam tire class for touring cars. I do not think they should be allowed to run against the rubber-tire cars, unless all the "rubber" racers agree to let them do so.

—Chris Filtz

They offer more grip, but beginners will tear those foams apart in no time, and no one wants that. Who wants to go to the hobby shop for new tires after their first run?

—Kyle Baxter

No; they may be inexpensive, but they start to chunk and have to be thrown out after a few runs!

—Derek Lewis

John McRae says: "You use foams for your touring cars; I'll 'stick' with rubber."

—John McRae

Definitely. You will see the competition improve if foams are used because it is so much easier to tune a car that has twice the amount of traction.

—John Ballato

SOURCE GUIDE

AIRTRONICS

1185 Stanford Ct., Anaheim, CA 92805; (714) 978-1895; fax (714) 978-1540; www.airtronics.net.

ECHO

Distributed by Schumacher USA, 6302 Benjamin Rd., Ste. 404, Tampa, FL 33634; (813) 889-9691; fax (813) 889-9593; www.racing-cars.com.

LRP ELECTRONIC

Distributed by Team Associated.

PRO-LINE/JACO

P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968; www.pro-lineracing.com.

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TEAM ASSOCIATED

3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; fax (714) 850-1744; www.teamassociated.com.

TEAM ORION INC.

22601 La Palma, Ste. 103, Yorba Linda, CA 92877; (714) 694-2812; fax (714) 694-2815; www.team-orion.com.

YOKOMO USA

Airport Business Center, 17951 Skypark Cir., Ste. K, Irvine, CA 92614; (949) 252-8663; fax (949) 252-8657; www.yokomousa.com.

NEXT MONTH'S QUESTION

**The dirt dilemma:
blue-groove for fast,
consistent laps, or soft
stuff for "real" off-road
ruts and changing track
conditions—
which is better?**

Respond by clicking "Last Lap" at www.rcraction.com, or email your responses to gregv@alrge.com. ■

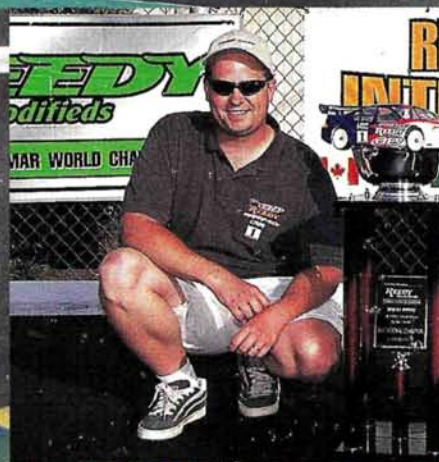
REEDY Touring Car Race of



by George M. Gonzalez

Attending the Fourth Annual Reedy Touring Car Race of Champions—hosted by Ripon (CA) RC Speedway and sponsored by Reedy Modifieds, Team Associated, Pro-Line and Yokomo—was like being at the IFMAR Worlds, in terms of the tremendous support by manufacturers and the field of the best TC drivers from around the world. With mandatory control tires, a new 10-turn motor limit and a “round-robin” scoring system, you know that the racing action in the Invitational class was every bit as intense as that in any World Championship-level event. But there was more than personal pride on the line; manufacturers’ bragging rights were also up for grabs. Team Losi, HPI, Kyosho, Yokomo and Trinity were all running new touring-car platforms and were looking for that first big win in the U.S. If you haven’t already skipped ahead to the “Winners’ Chart” to see the results, then I invite you to turn the page to see how this exciting event turned out.

Team Associated
factory team driver
Mark Pavidis is
crowned the 2001
Reedy TC Race
Champion. Way to
go, Mark!



Champions



Reedy TC race moves to Southern California

It was announced that the Reedy TC Race will be held at a new location next year. Tamiya America in Aliso Viejo, CA, will host the Fifth Annual Reedy TC Race. The Tamiya America facility features an awesome permanent on-road track where the TCS National Championships are held every year. According to Tamiya representative Dave Jun, the track will undergo remodeling to make it even larger than the Ripon RC Speedway track. The Tamiya America facility is located inland from Orange County's beautiful bay area, which means that first-class hotels, restaurants and entertainment will be only minutes away. Tamiya America will not take on this



A few daring racers found a nearby van and used it as an observation booth.



tremendous responsibility alone; the staff at Ripon RC Speedway and STRC Hobbies will be on hand to help manage the event. Sounds like a perfect marriage.

REEDY TC RACE RULES

Four rounds of qualifying gave the racers in the Open Stock and Open Mod classes ample opportunity to put in a good run. The top 10 qualifiers then faced triple A-mains, where points were awarded according to the drivers' finishing positions (first place = 100 points, second place = 99 points, third = 98 points, etc.). Naturally, the driver with the highest score was declared the Reedy TC Race Champion. Things went a little differently in the Invitational class: first of all, the drivers in this class are all invited to compete, and



Additionally, each Invitational class driver was awarded a throw-out round each day, and this meant that the drivers' worst two finishes were not counted but were used only to settle a tie. Therefore, the lowest score possible was 6 points.

OPEN CLASS ACTION

• **Stock Touring.** There's no denying that the most dialed racer in this class was Team Schumacher driver Pat McCarson. He not



1. Team Associated's Craig Drescher (left) tries to get some tips from Reedy Race Invitational champ Mark Pavidis. 2. Team Yokomo driver and former Reedy TC Race champ Chris Tossolini was on fire (as usual), and he ended up taking second place overall in the Invitational class. 3. Team HPI driver and reigning IFMAR International Touring Car Champion Atsushi Hara readies a new body for action. Hara finished third overall in the Invitational class and tied Todd Hodge for the fastest single lap (13.9 seconds) in the race. 4. Team Kyosho driver Takuya Ito (left) and his mechanic Hiro Yoshi Ishikawa made the trek all the way from the Land of the Rising Sun to race their brand new KX-1s. 5. Simo Ahoniemi (left) and his brother Sakke traveled all the way from Finland to compete in the Open classes. These guys are Team Corally drivers who travel around the world competing at prominent racing events. Sounds like fun! 6. Josh Cyrul tried to hide Trinity's new Reflex T touring car every time I walked by his pit area with my camera, but don't worry, gang—the G-Man always gets his shots. Check out "New in the Pits."

second, this class has no qualifying rounds to separate the men from the boys. Instead, Invitational class drivers faced four rounds of racing on Saturday and four more rounds on Sunday. The racers were then awarded points according to how they finished in each round (first place = 1 point, second place = 2 points, third place = 3 points, etc.). So the driver with the lowest score was declared the Reedy Invitational class Champion.

only picked up the TQ, but he also went on to easily win the first two A-mains and earn the Reedy TC Race Open Stock Championship. McCarson took the honorary DNF in the third Main to allow the other competitors to sort out who would secure second- and third-place honors. Jay Neil claimed second after finishing third in the A2 Main and first in the A3, and Marc Garvey, who finished second in the first two Mains, was awarded the third-place trophy.

Do control tires and motor limits really level the playing field?

In an effort to control the costs of competing and to ensure that a driver's skills are more important than the size of his tire and motor budget, the Reedy TC Race contestants were required to use Pro-Line H-13-compound control tires; a new, 10-turn motor limit was also enforced. The Open class drivers were given three complete sets of tires, and the Invitational class drivers received four sets. These were the only tires the racers were allowed to use during the race, although the type of tire inserts used was entirely up to each driver's discretion. Because track conditions changed constantly—ranging from 90 degrees in the morning to a scorching 165 degrees in the afternoon—the type of inserts used made a huge difference in tire performance. The drivers who showed up a few days early to practice definitely had the upper hand because they knew which types of inserts to use when the track was merely warm and which to use when the track was blazing hot.

A new, 10-turn motor limit was also enforced in the Open Mod and Invitational classes. Like any new rule, the 10-turn motor limit was somewhat controversial. The fact that any brand of 10-turn motor could be used bothered a few drivers. No limits were imposed on the number of winds or the type of armature and brushes or the amount of timing. Some felt that this left a lot of room for interpretation in the hands of more industrious racers and motor tuners. In the end, most of the drivers I talked to felt that any type of restriction, no matter how small, in some way contributes to fair racing, and that's a good thing.

• **Mod Touring.** For the first time, I saw two drivers completely dominate the Open Classes at the Reedy TC Race. Following Open Stock champ Pat McCarson's lead, Team Losi/Team Orion driver Jason Corl took the TQ honors and then went on to post back-to-back wins in the first two Mains to lock up the Reedy TC Race Open Mod Championship for himself and his sponsors. With second-place wins in the first and third Mains, Team Tamiya driver Surikam Chaidassuriya, who traveled all the way from Japan with

his 414M chassis, clinched second. Team Losi/Team Trinity driver Adam Drake finished third with a fourth-



7. Gil Losi Jr. (left) bench races with Yokomo driver Barry Baker (center) and Trinity driver David Spashett. 8. Team Associated/Kyosho driver Richard Saxton may be a prominent nitro-powered off-road racer, but he still needs some practice driving on level surfaces.



place finish in the first Main and a win in the A3.

INVITATIONAL CLASS ACTION

After the first day and four rounds of racing, it was Team Losi/Team Trinity factory driver Brian Kinwald who ended with the lowest score—a perfect 3 points—to take the lead. Kinwald's Trinity-powered Losi XXX-S was

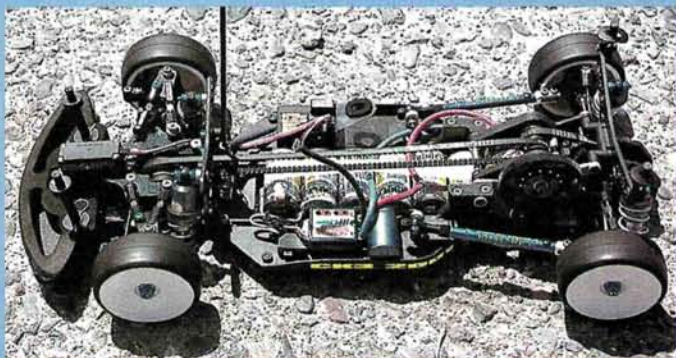
absolutely dialed! Team Associated/Reedy driver Mark Pavidis, Team Yokomo driver Chris Tossolini and HPI/Reedy driver Atsushi Hara were all within striking distance and were tied with 4 points each (before factoring in their throw-out round), so Kinwald knew he had his work cut out for him on the next day. Team Tamiya/Team Trinity driver Jimmy Jacobsen, Team Associated/Reedy driver Craig Drescher, Team Schumacher/Team Orion driver Teemu Leino and Team Yokomo/Reedy driver Barry Baker were next on the scoreboard with 6 points each, but a sudden run of good luck could easily have thrust any of these drivers into the limelight on Sunday.

The racing action was red-hot on Sunday. Mark Pavidis was absolutely unstoppable. With unquestionable tenacity, he earned each win by avoiding the carnage that awaited him around every corner, and when necessary, he opened up a fresh can of "whup-ass" and laid down the law! Yes, the Invitational class became a free-for-all, with tremendous first-turn pileups and daring, vengeful passes in every heat. Somehow, Pavidis managed to continue winning, and after three straight victories, he had earned a combined score of 7 points—practically a landslide compared with his competitors' results. Chris Tossolini and Atsushi Hara both finished with 10 points, but Tossolini had a better throw-out round, so Hara had to settle for third.

NEW IN THE PITS

Trinity

Here are a few spy shots of Trinity's prototype Reflex T touring car. Keep in mind that this is only a test mule; the production car will probably look completely different. Here's what probably will not change, though. The Reflex T will use a dual-belt drive train and a molded main chassis. The battery placement remains in the center of the chassis along with the slightly offset motor; this arrangement



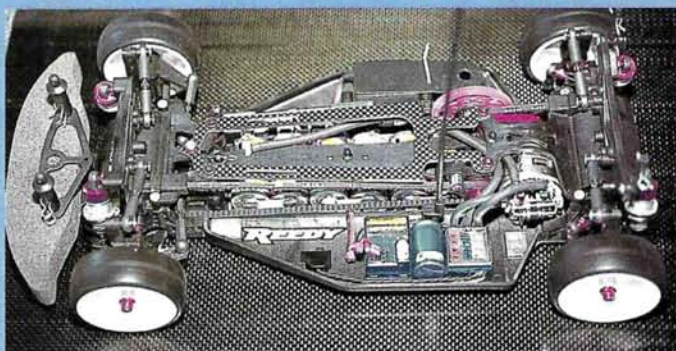
places most of the weight at the chassis centerline to provide quicker steering response. The prototype features upper front arms that look similar to the Active Caster front suspension on Trinity's Switchblade on-road cars. The tie rods allow infinite camber- and caster-adjustment possibilities. The torque rods that secure the rear hub carriers and the front-bumper-mounted steering servo add to the prototype's uniqueness. We'll let you know more about the new Trinity Reflex T and Reflex NT (yes; a nitro-powered version is also in the works) as soon as more information becomes available.

HPI

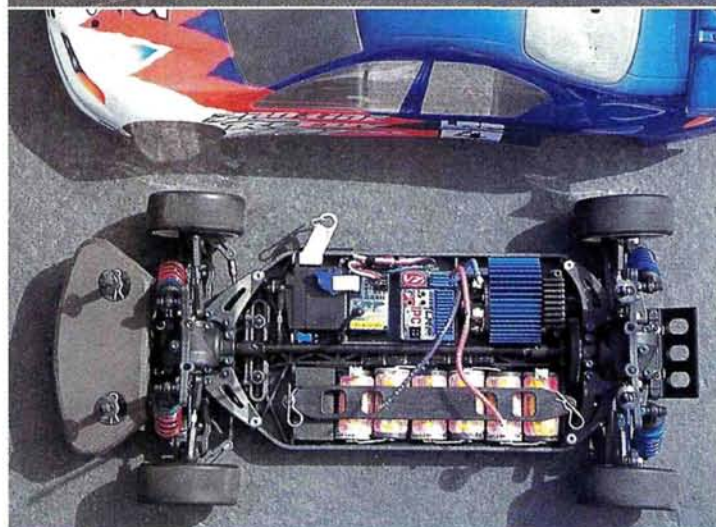
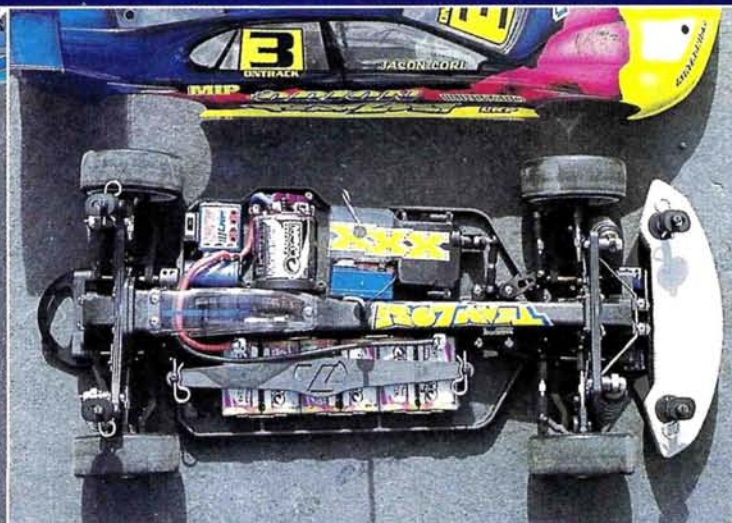
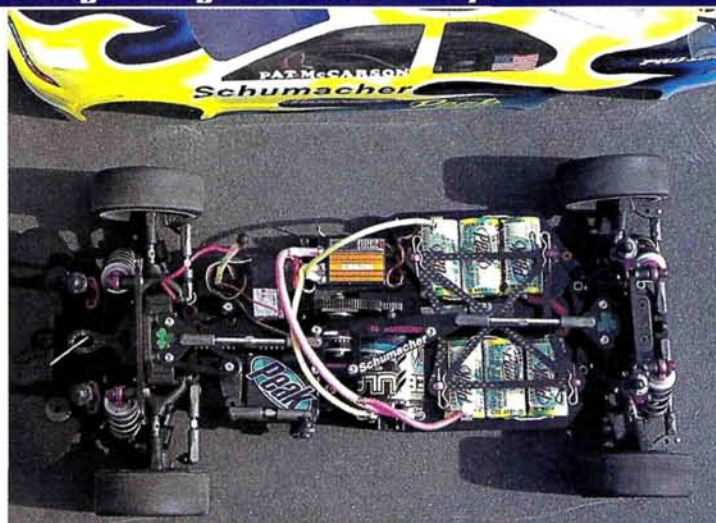
The HPI team drivers were experimenting with new hop-ups for the Pro 3 touring car, including a molded-graphite chassis that's considerably more rigid than the stock chassis. A new upper deck that makes the chassis more rigid without complicating battery installation and removal was also tried, along with a more complex upper deck from HB. Optional, finned motor mounts, aluminum belt pulleys and front and rear swaybars can also be seen.



Hidekazu Ito is the designer of the new HPI Pro 3. He raced in the Open Mod class, and that gave him valuable R&D time. Ito brought along many new prototype parts to test, some of which just might make it to production.



Reedy Touring Car Race of Champions



Above left: Pat McCaaron's Open Stock class-winning Schumacher Axis 2. Peak Performance power and Keyence power management consistently hurtled McCaaron's car past the checkered flag first in the initial two A-mains. Above right: Jason Corl's Open Mod class-winning Team LSI XXX-S—not a bad start for the new LSI flagship sedan. Left: Mark Pavidis' Invitational class-winning Team Associated Factory Team TC3. Mark proved that it takes consistent driving and a competent touring-car platform to win at the Reedy TC Race.

SIGNING OFF

The Fourth Annual Reedy TC Race was fun, exciting and full of surprises. My hat is off to the staff at Ripon RC Raceway and STRC Hobbies for providing a first-class race facility. *Radio Control Car Action* would also like to congratulate Mark Pavidis, Jason Corl and Pat McCaaron on their victories. Remember, the Reedy race has moved to Southern California. See you all at Tamiya America next year. ■

OPEN STOCK TOURING CLASS

Fin/Qual	Driver	Chassis	Motor	Battery	ESC	Radio	Tires
1/1	Pat McCaaron	Schumacher	Handout	Peak Performance	Keyence	Air/3PS	Handout
2/2	Jay Neill	Yokomo	Handout	Panasonic	Novak	Air/M8	Handout
3/4	Mark Garvey	Associated	Handout	Trinity	Novak	Air/M8	Handout
4/3	Charley Suanka	Yokomo	Handout	Reedy	Novak	Air/M8	Handout
5/0	Korgae Scales	Yokomo	Handout	Nuclear Power	Novak	Air/M8	Handout
6/5	Brad Geck	Associated	Handout	Reedy	LRP	Air/M8	Handout
7/8	Alex Siemantel	Yokomo	Handout	Pro-Match	LRP	Air/M8	Handout
8/6	Jeff Maurer	Schumacher	Handout	World Class	LRP	Air	Handout
9/7	Tyree Phillips	Losi	Handout	Reedy	Novak	JR/R1	Handout
0/9	Steve Perez	Associated	Handout	SMC	Novak	JR/R1	Handout

OPEN MOD TOURING CLASS

Fin/Qual	Driver	Chassis	Motor	Battery	ESC	Radio	Tires
1/1	Jason Corl	Losi	Team Orion	Team Orion	LRP	Air/M8	Handout
2/2	S. Chaidassuriya	Tamiya	Reedy	Trinity	LRP	Futaba	Handout
3/6	Adam Drake	Losi	Trinity	Trinity	Novak	Air	Handout
4/4	Dave Loftin	Losi	Trinity	Trinity	Novak	Air	Handout
5/3	Jeff Wittman	Schumacher	Bonzai	Nuclear Power	LRP	Air/M8	Handout
6/8	Jared Tebo	Associated	Reedy	Reedy	LRP	Air/M8	Handout
7/5	Terry Martin	Yokomo	Fantom	Yokomo	GM	Air	Handout
8/9	Andrew Gray	Associated	Fantom	SMC	Keyence	Air	Handout
9/0	Dominic Favorito	Schumacher	Fantom	SMC	LRP	Air	Handout
0/7	Tony Phalen	Associated	Reedy	Reedy	LRP	Air/M8	Handout

INVITATIONAL CLASS

Fin/Points	Driver	Chassis	Motor	Battery	ESC	Radio	Tires
1/7	Mark Pavidis	Associated	Reedy	Reedy	LRP	Air/M8	Handout
2/10	Chris Tossolini	Yokomo	Reedy	Reedy	LRP	Air/M8	Handout
3/10	Atsushi Hara	HPI	Reedy	Reedy	Nosram	KO Propo	Handout
4/11	Brian Kinwald	Losi	Trinity	Trinity	Novak	Air/M8	Handout
5/11	Jimmy Jacobsen	Tamiya	Trinity	Trinity	Keyence	Air/M8	Handout
6/12	Craig Drescher	Associated	Reedy	Reedy	LRP	KO Propo	Handout
7/13	Teemu Leino	Schumacher	Team Orion	Team Orion	LRP	Air/M8	Handout
8/15	Barry Baker	Yokomo	Reedy	Reedy	LRP	Air/M8	Handout
9/15	Mike Dumas	Associated	Reedy	Reedy	Novak	Hitec	Handout
0/16	Billy Easton	Associated	Reedy	Reedy	LRP	Air/M8	Handout



RC Tool

BY GREG VOGEL

All RC cars—even ready-to-runs—need maintenance and repair, and that means you need the right tools for the right jobs. A screwdriver, a pair of pliers and your kit's included "L" wrenches and box wrench will get you only so far; to keep your RC machine running right, you'll need tools, and there's nothing better for working on RC cars than RC-specific tools. We've rounded up the important commodities (screwdrivers, pliers, nut drivers) as well as specialized tools just for the jobs you'll encounter in RC.

THE BASICS



1. TAMIYA no. 1 bladed—part no. 74008, \$4.79.
2. HUDY no. 1 bladed—1155800, \$12.95.
3. TRINITY Phillips—RC2067, \$10.95.
4. DURATRAX no. 1 bladed—DTXR012, \$2.49.

SCREWDRIVERS

Good-quality flat-head and Phillips-head screwdrivers are must-have items for any driver's toolbox. For RC use, you'll need no. 0-, no. 1- and no. 2-size drivers. These fit the smallest screws, such as the 2-56-size screw found on servos to the large, 8-32 screws holding the bulkhead to the chassis on an Associated 10L. DuraTrax screwdrivers are sold separately as well as in sets, and they feature coated tips and cushioned handles. Tamiya's line is of very high quality, and Hudy offers the most finely finished drivers we've seen.



1. HUDY 5mm driver—132040, \$12.95.
2. OFNA $\frac{1}{16}$ -inch driver—10820, \$10.95.
3. XTM 2.5mm driver—32216, \$7.99.
4. DYNAMITE $\frac{1}{16}$ -inch driver—DYN2710, \$14.95.
5. TRINITY $\frac{1}{16}$ -inch driver—RC2064, \$10.99.

HEX DRIVERS

If you are using the small, L-shaped Allen wrenches that came with your kit, find the nearest wastebasket and go for the three-point shot. Though good enough to get your car built, they aren't strong enough to use constantly, and the L shape is difficult to turn in tight spots. A good set of hex drivers with screwdriver-type handles will make it much easier to build vehicles and will reduce the chance of damaging the screw.

PLIERS

Of course, you have a pair of pliers in your toolbox. The question is, are they of an appropriate size for RC work? We've seen a few drivers out there working with pliers big enough to open fire hydrants. All you need for most jobs is a solid pair of needle-nose pliers. Some have cutters built into the bottom of the jaws, and these can be useful for clamping shock shafts by the threads. When you buy a pair, check the jaws to see whether they fit your needs; some have teeth for better grip, and some are smooth so they won't mar the parts you hold with them.



1. NIFTECH—2375, \$14.95.
2. TAMIYA—74002, \$21.49.
3. DURATRAX—DTXR0300, \$4.99.

Guide

THE RIGHT TOOLS FOR THE RIGHT JOBS

CROSS WRENCHES

In general, combination tools are kind of hack and seldom work as well as the correct individual tools. The exception to this is the heavy-duty cross wrench. Particularly useful for nitro work, the cross wrench is versatile enough to handle four (or more) different nut sizes, and some even have storage for glow plugs. The cross shape also makes it easy to apply a lot of leverage to the fastener in question—just what you need for socking down clutch nuts and big, $\frac{1}{8}$ -scale buggy-wheel nuts.

1. KYOSHO's wrench—80312, \$12.49, includes a crankshaft locking tool.
2. The DURATRAX Ultimate Car Wrench—1175, \$7.99, stores four glow plugs and fits 7-, 8-, 10-, 12- and 17mm nuts and includes a 19mm socket for Kyosho $\frac{1}{8}$ -scale buggy-wheel nuts and a Phillips-head/flat-head screwdriver bit.
3. OFNA's simple one-piece design—10801, \$6.19, handles 7-, 8-, 10- and 17mm nuts.



FLUSH CUTTER

This relative of the diagonal cutter is used to trim parts neatly from their trees without leaving a nub of plastic on the part, and they're also useful for other soft-material-cutting chores. Stay away from music wire and other hardened materials; they'll damage the jaws.



1. TAMIYA's sharp flush cutters—74001, \$23.69.
2. A pair from HOBBICO—278, \$5.99.



NUT DRIVERS

Still relying on kit-supplied box wrenches for your nut-turning needs? A set of nut drivers is a better way to go; you'll be able to sock down nuts more tightly, more quickly and more comfortably.

1. TAMIYA's deep-socket drivers are great for threading nuts over long screws—74027, \$8.59.
2. DYNAMITE offers a fine-quality set of drivers like this $\frac{3}{8}$ -inch nut driver—DYN2756, \$14.95.
3. TRINITY's 8mm driver—RC2072, \$14.79, is of excellent quality.
4. One of PARMA's inexpensive set of drivers—7920, \$7.99/set.
5. Traditional tools with handles are easiest to use, but TRINITY's space-saving Pocket Wrench drivers—TK5045, $\frac{3}{8}$ -inch, \$21.99, are easy to stow and are great for jobs where a long handle gets in the way.

REAMER

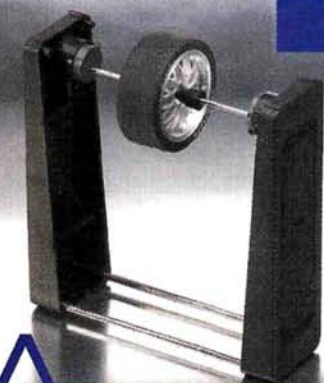
If you're firing holes into your body with a big drill, you're a bozo. Get a body ream and trim 8 pounds from your pit bag! Traditional multi-flute reams, such as Dynamite's, are easier to control but don't cut as cleanly as the razor-sharp two-flute type popularized by Hudy. But all are a giant step up from a big ol' drill or from hacking holes in your body by twirling a hobby blade into the roof.



1. TRINITY reamer—RC8105, \$32.99.
2. KYOSHO multi-flute reamer—80311, \$19.99.
3. Dynamite reamer—DYN5515, \$17.95.
4. OFNA reamer—10804, \$25.95.
5. DURATRAX multi-flute reamer—728-0015, \$11.99.

RC Tool Guide

SPECIALTY TOOLS



TOP FLITE TIRE BALANCER

Just like full-scale cars, RC cars also benefit from having their tires balanced. Just ask Masami; he's a freak about balanced tires. The Top Flite balancer suspends the wheel via magnets for a "zero-gravity" effect that makes it easy for you to find the "heavy" side of the wheel and compensate for it by sticking lead tape to the other side. **Part no. 5700, \$19.99.**

DURATRAX BALL-END TOOL

Who loves assembling camber links and tie rods? Nobody! A DuraTrax ball-end tool makes it much easier to hold and turn those finger-busting ball cups. Each tool is machined to fit a specific type of ball cup, and the knurled handle makes it easy to crank them onto the turnbuckles. A less substantial but very functional and inexpensive plastic model is also offered.



1. DURATRAX ball-cup driver for Associated—DTXR1130, \$8.99. 2. DURATRAX ball-cup driver for Losi—DTXR1135, \$8.99. 3. Universal—DTXR1126, \$3.49.



TAMIYA 2- AND 4MM E-CLIP TOOL

Ever shot an E-clip into never-never land (or your eye) as you tried to pop it onto a hinge pin or a shock shaft? Tamiya's E-clip tools make installation much easier. Just push the clip onto the shaft with the tool's curved jaw. **2mm tool—74032, \$9.29; 4mm tool—74033, \$9.29.**



TAMIYA FILE SET

A fine-tooth file should be part of every racer's toolbox, but full-size files take up a lot of space. Tamiya's Mini 4WD file set is aimed at fans of the sci-fi-inspired, free-running AA-powered cars, but RC racers will find the set very useful for hand-fitting suspension arms and de-burring parts. **Part no. 74036, \$8.59.**



RACE TECH DYNAMIC STRUT BALL INSTALLER

Oval guys, this is a must-have tool. Instead of marring those delicate plastic pivots with pliers, use this tool to painlessly squeeze the pesky buggers into place when you rebuild (and pop 'em out when they're worn). **Part no. R9020, \$11.95.**

BODY SCISSORS

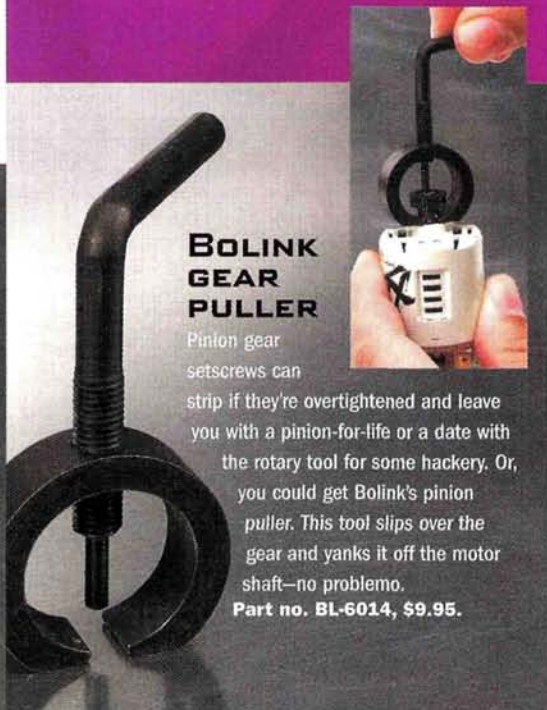
Take a pair of straight scissors and try cutting out a wheel well—it isn't going to happen. Curved Lexan scissors are an RC modeler's best friend. They can not only easily trim tight curves on bodies, but their short blades are also useful for many other nipping tasks, from opening parts bags to trimming servo tape.

1. The extra-fine chrome scissors are from TRINITY—7023, \$9.49. 2. PARMA—10398, 12.99. 3. DURATRAX—DTXR1150, \$9.95. They look alike, but note the slight differences in the blades; some have more or less curve, and blade length varies. The one that is best depends on the job at hand.



BOLINK 4-40 TAP

When you need a tapped hole, you need a tap. Nothing else will do. Bolink makes a very handy 4-40 tap (the most popular thread type for American-made kits) that includes a T-handle tap holder and reusable clamshell case. **Part no. BL-7615, \$9.99.**

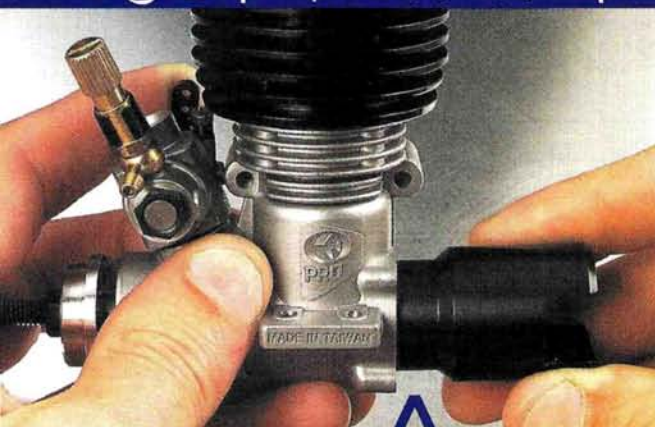


BOLINK GEAR PULLER

Pinion gear setscrews can strip if they're overtightened and leave you with a pinion-for-life or a date with the rotary tool for some hackery. Or, you could get Bolink's pinion puller. This tool slips over the gear and yanks it off the motor shaft—no problemo. **Part no. BL-6014, \$9.95.**

RC Tool Guide

JUST FOR NITRO



DYNAMITE CRANK-LOCKING TOOL

Using a piston-locking tool can put stress on the connecting rod as you tighten the clutch nut. The Dynamite crank-lock tool is inserted in the back of the engine through the backplate opening to secure the crank for tightening the nut. To prevent it from marring engine components, this tool is made from Delrin, and it works for both .12 and .21 engines.

Part no. DYN2519, \$9.95.

OFNA FLYWHEEL WRENCH

If you can't get a grip on the flywheel to tighten the clutch nut, then you should pick up an OFNA universal flywheel wrench. It's notched in

several places to fit just about every style of flywheel.

Simply slide the tool over the flywheel pins and tighten the clutch nut;

engine assembly and disassembly will be a lot easier.

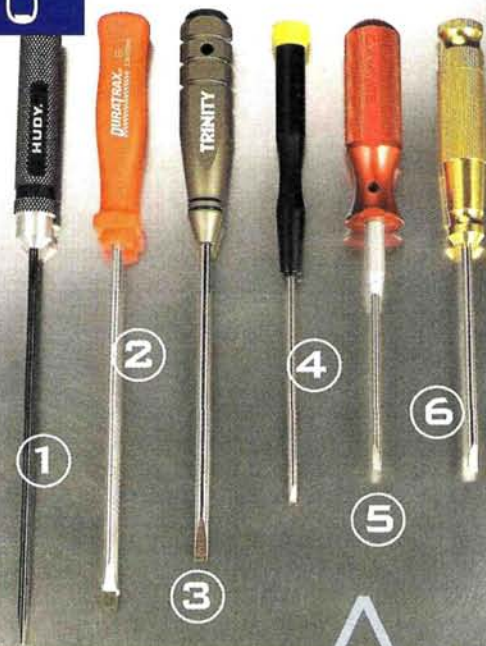
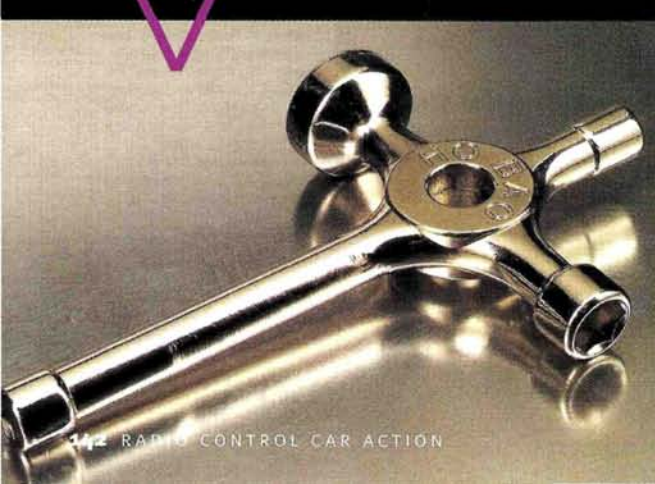
Part no. 10799, \$11.95.



GLOW-PLUG WRENCH

Yes, you could use any 8mm socket to remove your glow plug—as long as the socket fits into the heat-sink head, that is. Real mechanics use a thin-wall glow-plug driver to do the job right.

OFNA—10800, \$5.95; 10801 (w/17mm end), \$6.95.



CARB-TUNING SCREWDRIVER

When you're trying to dial in your carburetor with your car's body on, and you can't reach the needle because your screwdriver is too short (or you can't see what you're doing because your big, greasy hand is in the way), you'll wish you had an extra-long carburetor-tuning driver like the ones shown here. The XTM model even has a crank-locking tool that stows in its handle.

1. HUDY—154060, \$10.95. 2. DURATRAX—DTXR0185, \$5.49. 3. TRINITY—RC2066, \$10.99. 4. OFNA—10309, \$1.95. 5. DYNAMITE—2775, \$14.95. 6. XTM—146101, \$7.99.



PISTON-LOCKING TOOL

For light-duty engine work, a piston-locking tool like the one seen here from DuraTrax is all you need to prevent the crankshaft from rotating. To use the tool, simply remove the glow plug and screw the tool into place to hold the piston at bottom dead center. Don't use this type of tool for heavy-duty tightening or loosening, as you may overstress the conrod or wristpin.

Part no. DTXR1100, \$9.99.

SOURCE GUIDE

ASSOCIATED ELECTRICS
3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; www.rc10.com; www.teamassociated.com.

BOLINK R/C CARS INC.
420 Hosea Rd., Lawrenceville, GA 30045; (770) 963-0252; www.bolink.com.

DURATRAX
Distributed by Great Planes Model Distributors, 2904 Research Rd., P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; www.duratrax.com.

DYNAMITE
4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511; www.horizonhobby.com.

HOBBICO/GREAT PLANES MODELS DISTRIBUTORS
2904 Research Rd., P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; www.hobbico.com.

HUDY SPECIAL PRODUCTS
Distributed by Serpent Inc. USA, West Park Center, 2830 NW 79th Ave., Miami, FL 33122; (305) 639-9665; www.hudy.net; info@serpent-usa.com.

KYOSHO
Distributed by Great Planes Model Distributors; www.kyosho.com.

LOSI
Distributed by Horizon Hobby Inc., 4105 Fieldstone Rd., Champaign, IL 61822; (217) 355-9511; www.horizonhobby.com.

NIFTECH
5565 Wilson Dr., Mentor, OH 44060; (440) 257-6018; www.niftech.com.

OFNA RACING
22692 Granite Way, Ste. B, Laguna Hills, CA 92653; (949) 586-2910; www.ofna.com.

PARMA/PSE
13927 Progress Pky., North Royalton, OH 44133; (440) 237-8650; www.parmapse.com.

RACETECH
Distributed by Bolink.

RPM R/C PRODUCTS
14978 Sierra Bonita Ln., Chino, CA 91710; (909) 393-0366; www.rpmrcproducts.com.

TAMIYA AMERICA INC.
2 Orion, Aliso Viejo, CA 92656-4200; (800) TAMIYA-A; www.tamiya.com.

TOP FLITE
Distributed by Great Planes; www.top-flite.com.

TRINITY PRODUCTS INC.
36 Meridian Rd., Edison, NJ 08820; (732) 635-1600; www.teamtrinity.com.

XTM RACING
Distributed by Hobby People, 18480 Bandilier Cir., Fountain Valley, CA 92728-8610; (714) 964-0827; www.hobbypeople.net.

Rebuild a Traxxas EZ-Start

Stronger starting made simple by George M. Gonzalez

All of Traxxas' current nitro-powered vehicles (T-Maxx, Nitro Rustler, Nitro Sport, Nitro Stampede and Nitro 4-TEC) are equipped with the EZ-Start system that makes starting your engine as easy as pushing a button—hence the name “EZ-Start.” Although most hobbyists routinely maintain their engines, drivelines and suspension, the EZ-Start system is often neglected or misused and, like any other part, it may fail or malfunction if it isn't maintained properly. That will make it difficult to start your engine, and will defeat the purpose of having this type of engine-starting system in the first place. Follow the six simple maintenance steps outlined here, and your EZ-Start system will provide years of hassle-free operation.



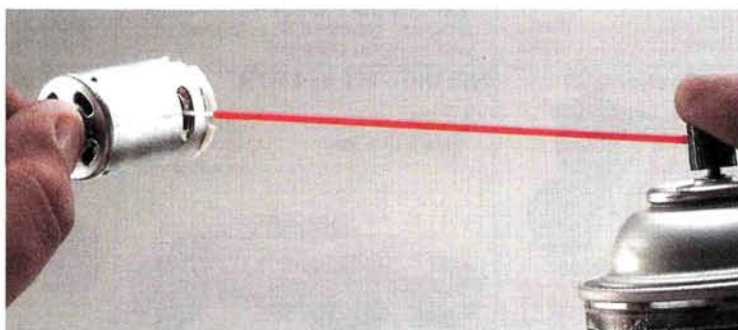
Step 1. Remove the EZ-Start system from the engine

It's easiest to remove the engine from the T-Maxx's chassis to gain access to the EZ-Start system, but you won't have to remove the Nitro Rustler's or Nitro Sport's engine. On these models, remove only the rubber exhaust manifold to gain access to the three 3x10mm machine screws that secure the EZ-Start system to the engine's backplate. Engine removal isn't required on the Nitro 4-TEC either, but in addition to removing the rubber exhaust manifold, you must loosen the 3x25mm and 3x15mm flat-head, self-tapping screws that go through the engine mount and are threaded into the rear bulkhead and chassis side brace. Also loosen the Nitro 4-TEC's engine-mounting screws to provide enough chassis clearance to remove the EZ-Start system. On the Nitro Stampede, accessing the EZ-Start is easy because the truck's exhaust manifold and muffler face toward the rear. Note: On all models, you must remove the positive and negative lead wires that are connected to the starter motor before you can remove the EZ-Start from the chassis.



Step 2. Remove the EZ-Start motor from the gearbox

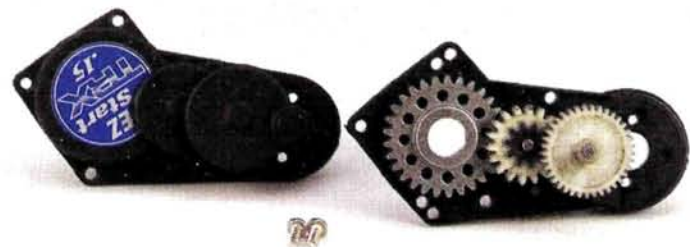
Simply remove the two 2x6mm round-head machine screws that secure the EZ-Start motor to the gearbox, and pull



out the motor. Inspect the brass pinion gear that is attached to the motor shaft for wear; its teeth should have a square profile. If they're tapered, replace the motor and pinion gear (sold together—part no. 4578) before you rebuild to avoid stripping the compound gear that mates with the pinion gear. Next, clean the EZ-Start motor thoroughly with electric motor spray, and after the motor spray has dried, apply a drop of lube to the bronze bushings. Now put the motor aside until you've completed Step 3.

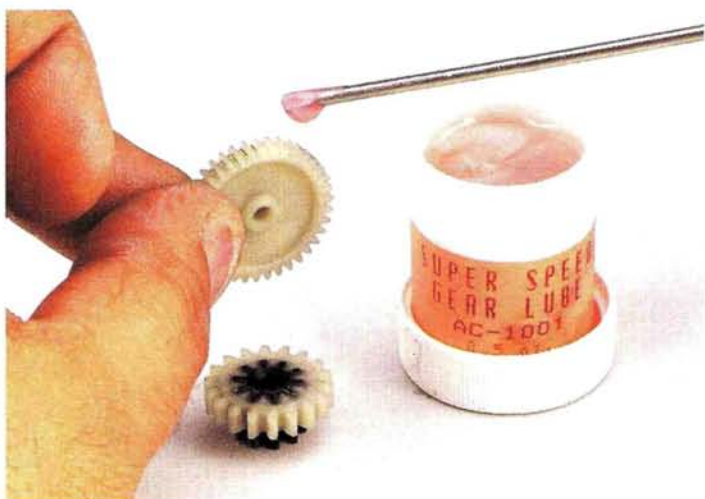
IS YOUR EZ-START UP TO SPEC?

Over the last two years, Traxxas made many refinements to the EZ-Start system to improve its performance and reliability. These revisions have been incorporated into their product line as “running changes.” The latest EZ-Start systems feature a newly designed gearbox, a bronze-bushing-supported motor pilot shaft, a high-torque motor that can be identified by its white molded endbell (earlier versions had metal endbells), a metal reduction gear (earlier versions had plastic reduction gears) and silicone-insulated wires. Traxxas offers a complete EZ-Start system (part no. 4570) that has everything you need to bring your older Traxxas vehicle up to spec.



Step 3. Disassemble the gearbox

Remove the two 3x8mm self-tapping screws that hold the gearbox halves together, then carefully pull the two apart. Remove the two compound gears and the metal reduction gear from the gearbox, but don't lose the small Teflon spacers that are installed on the gear shafts. Clean the gears thoroughly with nitro cleaner or denatured alcohol, removing any dirty grease that has built up. Next, clean the gearbox halves thoroughly with the solvent, then set the gearbox and gears aside to dry.



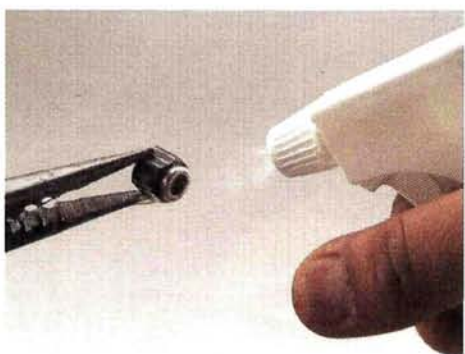
Step 4. Reassemble the gearbox

Apply a gear lube, such as Aero-Car Technology Super Speed Gear lube, to all the gears, then slide the gears back onto the gear shafts, following them with the Teflon spacers. Next, apply bushing oil to the motor pilot-shaft bushing that's pressed into the outer gearbox half, then join the gearbox halves and reinstall the EZ-Start motor.

Step 5. Clean the one-way bearing and starter shaft

To ensure proper operation, the one-way bearing must be cleaned periodically. Over time, it can become drenched with fuel, and that will cause it to slip on the starter shaft.

You can always tell when the one-way bearing is slipping on the shaft: the starter motor will rev but the engine won't crank over. Clean the bearing with nitro cleaner or denatured alcohol (both solvents). Simply spray the solvent directly onto the bearing, or completely soak the bearing in a solvent bath. Be sure to spray the engine's starter shaft with solvent and wipe it clean with a cloth. After the bearing has dried, reinstall the un-lubed bearing on the starter shaft with the tapered end facing the engine; this is important, or the starter won't turn over the engine.



TIPS FOR BETTER STARTS

BATTERIES. Most hobbyists usually buy the most inexpensive battery pack they can find to power their EZ-Start control box. Although just about any battery pack will provide satisfactory results, installing a top-quality, high-capacity, high-voltage pack (2000 to 3000mAh) will make a huge difference to starting. A good battery pack lasts longer between charges and provides more voltage for the EZ-Start motor.

GLOW-PLUG WIRE INSULATION. Since the engine head usually protrudes through your vehicle's body, the blue glow-plug wire is installed in a vulnerable position. On some models, a rollover can damage the glow-plug wire, but installing a piece of fuel tubing over the wire will protect it from damage.



PROPER EZ-START USE. Do not press the red button on the control box for more than 3 seconds. If the engine doesn't fire within 3 seconds—or at least “pop” and show signs that it is combusting fuel and wants to run—something is wrong with your engine setup. Fuel may not be getting to the carb, the carb could be out of tune, the glow plug could have failed, or the glow-plug lead wire may not be connected properly. Before you continue, figure out what's preventing the engine from starting; but whatever you do, don't run the starter motor for more than a few seconds, or you might damage it. Although the latest starter motors have more torque, never try to start a flooded engine. You can ruin the starter motor if you force it to turn over a hydro-locked engine.

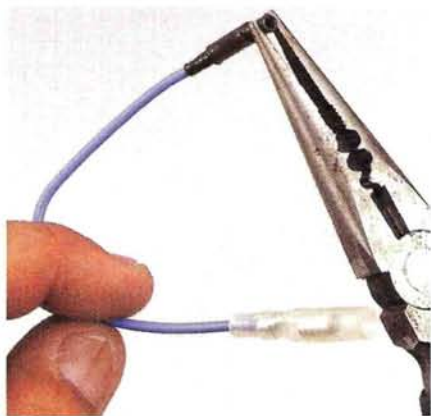
Step 6. Reinstall the EZ-Start system onto the engine

Be sure to apply thread-lock to the three 3x10mm screws. Reconnect the starter motor's wires; note that the positive terminal is marked on the endbell.

Step 7. Inspect the glow-plug lead wire

This is the blue wire that is connected to the glow plug and ignites the plug when you press the red button on the control box. If the connector that's installed on the glow plug is loose, the engine may not start, no matter how long you push the button.

Sometimes, the heat-shrink insulation that covers the connector prevents it from making contact with the glow plug. If, for some reason, the engine doesn't fire after a couple of seconds, check the glow-plug lead-wire connector. If it's loose, simply crimp it onto the wire with a pair of pliers. If the insulation gets in the way, remove a small section of it from the connector. Replace the wire if it is worn. You can purchase just the lead, complete with bullet connector (part no. 4581) for a few bucks. ■



SOURCE GUIDE

TRAXXAS CORP.

12150 Shiloh Rd., Dallas, TX; (972) 613-3300; www.traxxas.com

AERO-CAR TECHNOLOGY

P.O. Box 336, Western Springs, IL 60558-0336; (708) 246-9027.

Care for Ni-Cd & NiMH Batteries

Trinity's Jim Dieter explains it all

by the staff of RC Car Action & Jim Dieter

Of all the technical questions we get here at *Radio Control Car Action*, those concerning batteries seem to be the most frequently asked by RC newcomers and veterans alike. Seeking definitive answers, Q-and-A style, we turned to Jim Dieter—power broker to Trinity team drivers such as Brian Kinwald and Josh Cyrul.

CHARGING

Q: At what amperage should I charge my packs? Do packs of different capacities require different charge amperages?

A: As a rule, Ni-Cd batteries can be charged safely at twice their rated capacity; for example, a 2400mAh pack can be charged at 4800 milliamps, or 4.8 amps. Four amps is a safe rate for good all-around performance with any Ni-Cd battery. Higher amp rates can be used to deliver slightly more punch, but this is only effective if you run the pack immediately after you've charged it. Avoid amp rates in excess of three times the pack's capacity, as they may lead to overheating of the pack. Unless you're in a hurry, stick with 4 amps.

Nickel-metal-hydride (NiMH) cells should also be charged at 4 amps, but there is no benefit to charging them at higher amp rates. Unlike Ni-Cd packs, which "like" to be overcharged, NiMH cells don't respond to multiple re-peaks or high-amp charging and may be damaged by such methods.

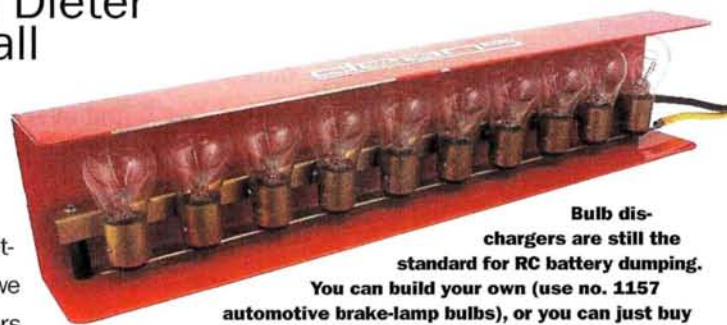
JIM DIETER: "The trick to getting maximum performance from any pack, whether NiMH or Ni-Cd, is to run it immediately after charging while its voltage is highest. After the pack has been removed from the charger, its voltage begins to flatten out."

Q: My charger has adjustable voltage threshold. What should I set it for?

A: For Ni-Cds, it depends on your pack. Unmatched packs and older batteries that have a

After dumping your pack in the car or on bulbs, you can use a discharge tray to equalize the cells and pull them down to minimum voltage.

Naturally, Jim Dieter prefers the latest Trinity Real Time tray. The leads connect to a built-in cooling fan.



Bulb dischargers are still the standard for RC battery dumping. You can build your own (use no. 1157 automotive brake-lamp bulbs), or you can just buy an assembled unit such as this one from W.S. Deans.

tendency to false peak may need a higher voltage threshold setting, while new matched packs can be charged with a lower setting. If your packs are coming off the charger closer to "hot" than to "warm," try reducing the voltage threshold setting.

For NiMHs, you generally want the voltage threshold set as low as possible. If the charger continues to pump current into the battery as it waits for a deep voltage drop to indicate a peak charge, the pack can quickly overheat.

JD: "Even if your charger has adjustable voltage threshold, it's a good idea to monitor NiMH packs as they charge. As soon as the pack's temperature increases, you can consider it peaked."

Q: My charger has "pulse" and "linear" settings. Which should I use?

A: Either setting is fine for Ni-Cd packs, but linear charging is generally preferable. Pulse charging can be helpful in getting a full charge into packs that like to false peak, but there's no performance advantage.

Stick with linear charging for NiMH packs; pulse charging doesn't seem to harm the cells, but the pack will tend to peak at a lower voltage than when using a linear charge mode.

JD: "NiMH batteries may be new, but they like good old-fashioned linear charging. If you're shopping for a charger, pass up pulse- or flex-charging modes in favor of features you can really use, such as adjustable amperage and voltage threshold settings."

DISCHARGING

Q: At what amperage should I discharge my packs?

A: Regardless of cell type, it's best to discharge the pack at an amp rate that approximates what the pack encounters under race conditions; generally, 20 amps for stock and 30 amps for modified racing. If you're using a bulb-type discharger with no. 1157 bulbs, use a 10-bulb discharger for a 20A load or a 15-bulb unit for a 30A load.

Will Ni-Cds be banned?

No definite date has been set for prohibiting the use of Ni-Cd batteries, which contain chemicals that are harmful to the environment, but it is going to happen. Because of this, the major battery manufacturers have stopped developing new Ni-Cd cells and are instead working on new battery technologies such as nickel-metal-hydride and lithium-ion. In the meantime, it is important to recycle your Ni-Cds by taking them to the hobby shop, RadioShack, or other participants in the "Charge Up to Recycle" program sponsored by the RBRC (Rechargeable Battery Recycling Corp.). For the address of a recycling center near you, call (800) 822-8837. Whatever you do, don't just toss your old packs into the trash; it's against the law, and it's bad for the environment.



One of the Novak Millennium's most useful features is its adjustable voltage threshold. Use it!

Q: How deeply should I discharge my packs?

A: At the very least, you should run your Ni-Cd packs until the car slows to a crawl. If you have a bulb-type discharger, dump the cells until the bulbs go out. For maximum dis-

charging (and maximum cell capacity when you recharge), use a discharge tray like Trinity's Real Time unit to individually discharge each cell. The Real Time 2 will bring each cell down to 0.5 volt per cell, or 6 volts for the entire pack. For most racing, this is as deeply as any pack needs to be discharged. If you don't fully discharge your pack by at least running it in your car until it dumps, the pack will "remember" that it was recharged without being fully discharged. This will result in a very "flat" performance when it is discharged past the point where you have trained it to expect a recharge.

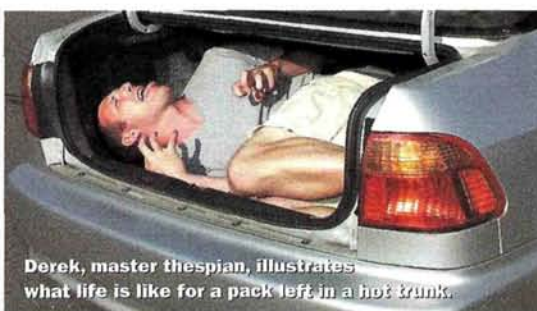
NiMH cells are not prone to "memory" problems like Ni-Cds, but it is still best to fully discharge them in the car or on bulbs, and then place them in a discharge tray. Don't worry about dumping them below 0.9 volt per cell; there's no benefit to extra-deep discharging.

Q: Will it hurt my packs if I run them more than once a day?

A: Recharging and discharging a Ni-Cd pack the same day won't hurt it. The voltage is usually better on the second run, but there is a slight loss in run time. This is good news for stock racers; the increased voltage gives more punch, and the minor loss in run time isn't an issue (unless you've geared the car to dump 10 seconds after the tone). If you continue to dump and recharge the pack, subsequent runs will be a little "flat," but you won't be damaging the cells. If you discharge and store the pack as this article explains, it will once again deliver maximum performance.

NiMH packs respond differently; feel free to run them two or three times a day, as the packs actually tend to improve with cycling.

JD: "No matter which type of pack you have, be sure to discharge it completely and let it cool before recharging it. A fan can help cool off your packs, but don't use ice or a freezer; these can cool the pack too quickly, and the associated moisture may cause a short."



Derek, master thespian, illustrates what life is like for a pack left in a hot trunk.

Safe deep-discharging

ALTHOUGH WE DON'T RECOMMEND DEAD-SHORTING PACKS, the concept of deep-discharging Ni-Cd packs is sound. To do it safely, solder a 30-ohm, 10W resistor across the positive and negative terminals of your battery after discharging it on a tray. You want to dump the cells on a tray first to equalize them; if you don't, the cells with less voltage will absorb voltage from the cells with more voltage, and your matched pack won't be quite so matched anymore. If you have stick packs with unmatched cells, don't worry about skipping the discharge tray step; just solder the resistor onto an appropriate connector, and plug the pack into it (Trinity sells resistors with installed Tamiya connectors, part no. 5012).

When you store a pack in this way, its voltage will be pulled down very, very low. For best results when you're ready to recharge it, remove the resistor and allow the pack to sit for an hour or so. This will allow the voltage to stabilize and will ensure a good charge.

STORAGE

Q: Should I store my packs charged or discharged?

A: For best performance, store Ni-Cds fully discharged. If you store them charged, they will gradually bleed voltage until they're depleted, and the pack will be very "flat" until you revive it with a few charge/discharge cycles.

On the other hand, NiMH packs should be stored charged. They don't have to be fully charged; 40 percent is enough. You can store them discharged, but performance will suffer until the pack is cycled.

JD: "Keep your packs in a cool, dry place when you're not using them; a weekend in the trunk of your car in summertime is far more harmful to your packs than a full year in a box under your bed."

Q: How long can I store my packs without damaging them or reducing their performance?

A: You can store Ni-Cds for a year or more with no damage, but you will want to cycle the pack for best performance when you're ready to start running them again.

No one has an answer yet to the long-long-term NiMH-storage question, but it isn't a problem to store packs for the duration of the off-season. Store the packs charged, cycle 'em before you race 'em, and they'll be fine.

You may have heard rumors about NiMH packs "going bad" on the dealer's shelf because they sat uncharged. It's a myth, and there's no need to worry about buying a "fresh" NiMH pack. All Trinity packs are sold with some voltage in them, and even if "dead," a NiMH pack will perform at maximum capacity after a few charge/discharge cycles. ■

Dead-shortening: fact and fiction

● **Why dead-short?** Dead-shortening—the practice of soldering a wire from the pack's negative end to its positive end to short-circuit the pack—is a technique used by racers to discharge a pack as closely as possible to absolute zero voltage. The idea is to "empty" the cells as much as possible so they can "hold more" when recharged.

● **Is it safe?** That depends. If a pack has been fully dumped, either in the car or on bulbs, and the individual cells have been brought down to 0.5 to 0.9 volt per cell by a discharge tray, then it is safe to short the pack because so little juice is left in the cells. But if you attempt to dead-short a fully (or even partially) charged pack, you could be injured, and you will certainly ruin your pack. A Ni-Cd battery can pump over 1,000 amps when shorted, leading to arcing, burns, or exploded cells. Since charged and discharged batteries look exactly alike, it's just too easy to make this mistake.

● **Should I do it?** At best, you might add a few seconds of run time to your pack; at worst, you'll ruin an expensive battery and possibly hurt yourself. Our advice? Don't dead-short. Jim Dieter doesn't dead-short Trinity's team drivers' packs, and they seem to have no trouble winning races.

The amazing Wankel

I know that every so often, you guys expect something different—even a little weird—from me, so here it is: the Wankel rotary engine. A mechanized anomaly that's more than just interesting; it's powerful! A powerful, mechanized anomaly; now, that sounds like my kind of weird.

Invented by Felix Wankel, the NSU Wankel rotary combustion engine was first manufactured by German automaker NSU. Until very recently, the same basic design as the original was used, for example in the quick Mazda RX-7, which culminated a few years ago in a twin-turbo version that was very fast! Over the years, O.S. has precisely manufactured and improved a version for model airplanes. This latest one features peripheral inlet (PI) technology, and at 11.8 ounces, it's the lightest O.S. Wankel yet. Although it has a .30ci displacement, rotary displacement can't be directly compared with reciprocating piston displacement. This baby puts out as much power as a .40 to .45 conventional engine.

To understand the Wankel, you

first have to forget everything you know about conventional piston engines. Replacing the familiar reciprocating piston and sleeve, the Wankel has a three-lobed (three sides) triangular rotor that turns about its own axis within a housing that has an epitrochoidal bore (kind of like a pinched oval shape). The three tips of the triangular rotor are in constant contact with the housing wall, thus forming three sealed chambers. As the rotor turns within this pinched oval housing, these chambers decrease and increase in volume, thereby drawing in and compressing the fuel/air mixture. At

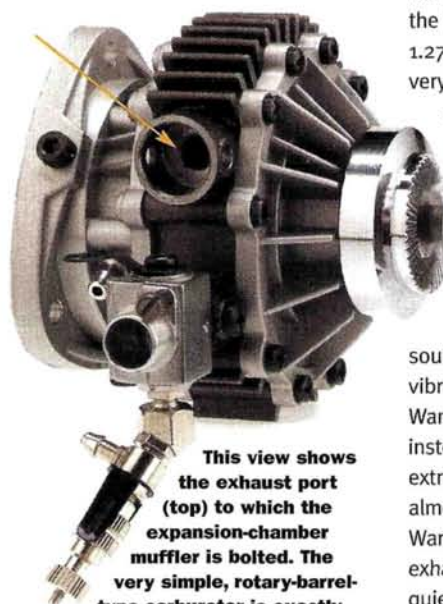


the three rotor tips, there are spring-loaded seals that prevent the gases from one chamber from spilling over into the next. Ideally, they fulfill the same sealing function as a ring would on a conventional piston: they hold compression. The carburetor and muffler are of exactly the same design as those with which you are already familiar.

Why run a Wankel?

OK; so are there any advantages to a strange contraption such as this? Well it's cool, to be sure, but it also has a high specific power output in the higher rpm range. It's rated at 1.27hp @ 17,000rpm, and that's a very realistic rating—not a load of marketing hype.

Then there's the vibration issue. In a conventional engine, a piston and conrod that are traveling upward must momentarily stop before they can start on their way back down. This is the source of a reciprocating engine's vibration. In the case of the Wankel, everything is spinning instead of reciprocating, so it's an extremely smooth engine with almost no vibration. And because a Wankel has a full 120 degrees of exhaust-port-duration timing, it is quieter than a conventional piston engine.



This view shows the exhaust port (top) to which the expansion-chamber muffler is bolted. The very simple, rotary-barrel-type carburetor is exactly like those found on .12- and .15-size car engines.

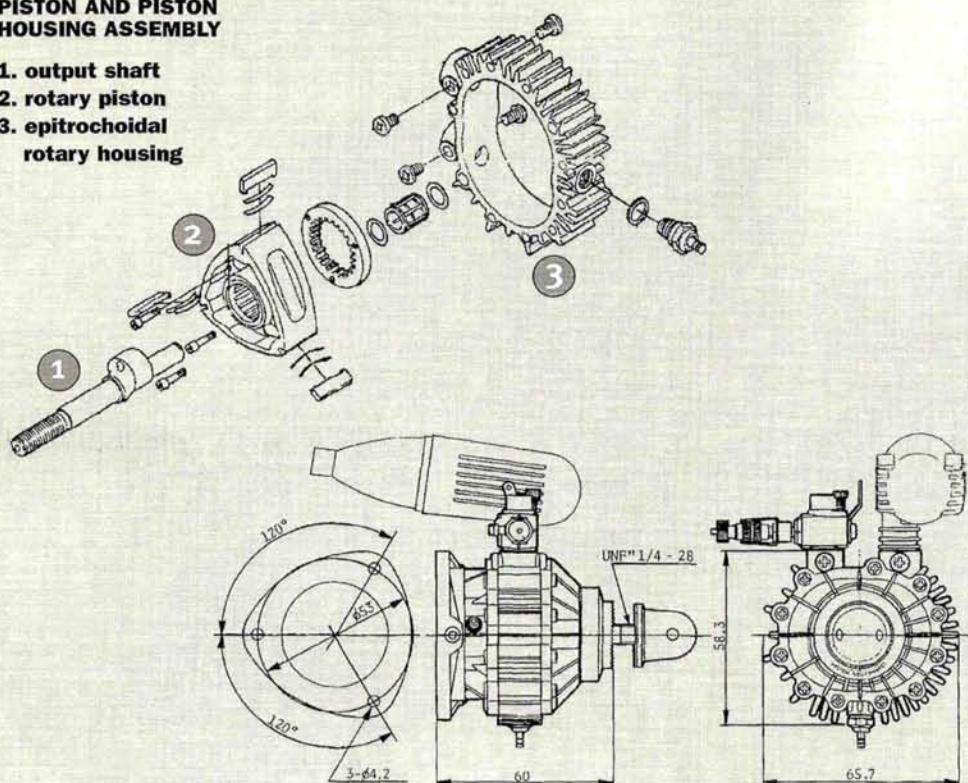
ROTARY MONSTER

This is Bulert Dosdenir's, of B&B Hobby Shop in Istanbul Turkey, Wankel-powered Kyosho USA-1. Bulert says, "The rotary USA-1 has awesome speed and acceleration, smooth idle and, of course, NO VIBRATION!" Thanks, Bulert; you get a complimentary subscription to *Car Action* for taking the time to send me the photos of your rotary monster.



PISTON AND PISTON HOUSING ASSEMBLY

1. output shaft
2. rotary piston
3. epitrochoidal rotary housing



Do I think you should run out and spend your next spare \$330 on this wondrous powerplant? Not unless you have your own machine shop to build the parts you'll need to install it in a car or truck. That's right; a conversion kit isn't available yet. I have seen the Wankels installed in a few types of vehicle, but their builders were the tinkering machinist types. If you fall into this category, by all means go for it. The absence of conversion kits notwithstanding, I just had to show you the inner workings of a rotary engine that I think is totally cool. After all, this column is called "Piston Power," so how could I ignore a powerful engine with a triangular piston? I couldn't. And I didn't! ■

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Hardcore Racing Heavy Metal Maxx Accessories

Hardcore Racing has been in the RC biz for only a short time, but its line of high-quality titanium and billet-aluminum components for the Traxxas Maxx trucks (and for many other brands of RC cars, for that matter) has struck a chord with monster-truck enthusiasts and racers. I decided to install a few choice accessories on my E-Maxx so I could see what all the hype was about.

TITANIUM SKIDPLATES

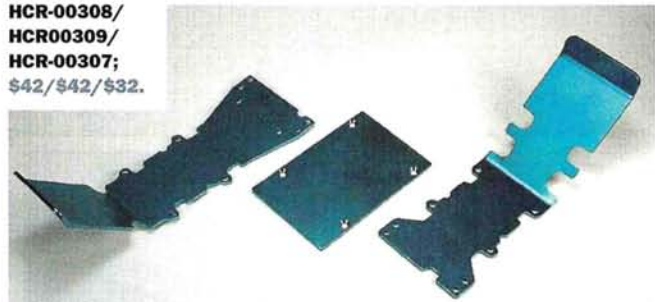
Because of my abusive driving, I've had to replace the molded skidplates on my E-Maxx a couple of times (OK, so I like driving my truck through rock piles and up and down staircases; does that make me crazy?). I decided to try Hardcore's seemingly bulletproof front, center and rear titanium

skidplates (sold separately) to see whether they really were "hard core."

To allow you to customize your truck however you want, the titanium

skidplates are available in four colors (purple, green, silver and blue, as shown in the pictures). All the necessary machine screws to complete the installation are included with each skidplate, and the parts fit perfectly without modification. The E-Maxx is a heavy truck, so I wasn't too crazy about the weight the Hardcore parts added compared with stock, but as it turned out, I didn't notice any decrease in top speed or acceleration from the extra weight nor did run times suffer. What I did notice is that I can now jump up curbs and plow into obstacles without worrying about breaking a skidplate. I also noticed that the chassis is a lot stiffer, thanks to the center skidplate that joins the two lower braces. But be warned: it's easy to scratch off the color anodizing.

Skidplate (F/R/center)—
part nos.
HCR-00308/
HCR00309/
HCR-00307;
\$42/\$42/\$32.



Likes

- Parts are super-strong, well made and nicely finished.
- Direct fit; no mods required.
- Most of us won't need them, but it's nice of Hardcore to include installation instructions.

Dislikes

- Anodizing scratches easily (this is true of all anodized parts—not just Hardcore's.)



Billet-aluminum chassis braces—
HCR-00303,
\$65/pair.



Shock towers (F/R)—HCR-00312, \$49/each.

BILLET-ALUMINUM CHASSIS BRACES

Hardcore's lower chassis braces perfectly complement the titanium skids because a completely metal lower chassis results when the parts are combined. Even on their own, the chassis braces are far more rigid than the stock molded pieces, and the Hardcore chassis braces also do a better job of securing the transmission to the chassis plate. It can be a little tricky to install the braces because the transmission is actually bolted down through the chassis and lower braces and is held together with locknuts. To allow you to coordinate your colors, the lower braces are brilliantly anodized in the same color choices as the skidplates.

BILLET ALUMINUM SHOCK TOWERS

Thanks to the beautiful color anodizing and artful machining, the aluminum shock towers look awesome installed on the chassis. They're stronger and more rigid than the stock components, too. I have to admit that the shock towers are purely eye candy because I've never broken a shock tower on any of my Maxx trucks. I guess if you're one of those extreme RC hobbyists who likes to sky his truck, it makes a great deal of sense to have aluminum shock towers.

TIPPING THE SCALES

COMPONENT	Component weight (g)	
	HARDCORE	STOCK
Titanium front skidplate	85	45
Titanium center skidplate	50	—
Titanium rear skidplate	79	40
Billet chassis braces	65	40
Shock towers (F&R, each)	35	25

THE VERDICT

The Hardcore skidplates, chassis braces and shock towers look great and are stronger than the pieces they replace. Overall, I'm impressed by the quality of the machining and the fact that the parts can be bolted on without any difficulty. I was also pleased that each component includes high-quality hex-head fasteners to complete the assembly and that instructions are provided for the more complicated items such as the lower chassis braces. If you want to build a heavy-metal Maxx truck, check out Hardcore Racing's line of fine-quality titanium and aluminum components.

SOURCE GUIDE

HARDCORE RACING COMPONENTS

25435 Rye Canyon Rd., Valencia, CA 91355;
(661) 294-5032; www.racinghardcore.com.

Continued on page 178

Trinity Off-Road Shock Dyno

Trinity is well known for its high-quality motors and batteries, but it also offers a complete line of tools and accessories that are designed to make it a little easier to work on your car or truck. The Off-Road Shock Dyno is a good example of Trinity's creativity. At first glance, it just looks like a block of foam with some blue standoffs, but after you've used it, you'll wonder how you ever got along without it.



ASSEMBLY

Assuming you've read the included instructions, assembling the Shock Dyno is fairly straightforward. Basically, the blue-anodized standoffs are pushed into the foam base, and the Plexiglas plate is secured to the standoffs with machine screws. When the top plate has been installed, you must carefully place the included measuring-scale plate next to the long slot on the Plexiglas plate. This measuring scale allows precise shock and tie-rod length.

Likes

- Easy to build and set up.
- Accurate.

Dislikes

- Can't hold bottom-loading shocks with collars at the top of the shock.

HOW IT WORKS

Now for the fun! The purpose of the Shock Dyno is to allow you to build shocks (or tie rods) that are precisely the same length. Have you ever looked at the front end of your car

and noticed that one side is lower than the other? The slightest difference in shock length can have a significant effect on your car's handling. If you are building shocks for the first time, assemble them without shock fluid, and pull the shaft all the way out of the body. Then install the shock in the jig according to the instructions, and tighten the adjusting nut. If you know exactly how long you want your shocks to be, as in most sedan setups, go ahead and adjust the ball end on the shock to obtain the desired length. If you don't know (or don't care) exactly how long your shocks should be, then just make sure they are both the same length. The four holes in the back of the jig aid in filling the shocks. With Associated-style shocks, you can place all four shock bodies inside the jig, then fill them with the appropriate oil. The jig holds them upright and prevents the fluid from spilling out. If you happen to use Losi-style (bottom-filling) shocks, then you may run into a problem if your shock collars are at the top of the shock. You must move the collars down before the body will fit in the jig. After filling them, it is advisable to leave your shocks in the jig for a few minutes to allow any air in the oil to rise to the surface. Once the air is out, you can finish assembling the shocks.

THE VERDICT

The Shock Dyno is a very useful tool for people who rebuild shocks regularly. It permits accurate measuring of shock and tie-rod lengths and prevents your pit area from becoming slippery with spilt shock oil. My only gripe is that the dyno can't be used with bottom-filled shocks unless their preload collars are moved.

Part nos. (off-road/on-road)—RC1021/RC1020.
Prices—\$13.99/\$11.99.

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TRINITY PRODUCTS INC.
36 Meridian Rd., Edison, NJ 08820; (732) 635-1600;
www.teamtrinity.com

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Racetech Brush-contouring tool

If you like the idea of breaking in your brushes without wearing out your motor's commutator and would like to experiment with timed or half-cut brushes, Racetech's brush-cutting tool deserves a look. The tool may be attached to any 05 motor, and it uses an abrasive aluminum cylinder that matches the dimensions of a comm to quickly contour and break in the brushes. After attaching the cutting cylinder to the motor, as you would do with a pinion, the molded cutting block is slipped over the cutter and secured with the included screws. Power up the motor with a 4-cell pack, and all you have to do is slide a brush against the cutter to contour it. Slots are provided for standup and laydown brushes; the lower set of slots breaks in brushes; the upper set allows half of the brush face to sit above the cutter. Press the brush to the



cutter, and it will produce half-cut or timed brushes (depending on how you orient the brush).

You need only look at this Racetech tool to know it will work well, and work well it does. Brush break-in is instantaneous; it spares your motor's shiny new comm from unnecessary wear; and custom cuts are easily made.

THE VERDICT

Fair pricing and an effective yet simple design make this tool worth adding to your motor-tuning toolbox.

Racetech brush contouring tool—part no. R3408, \$16.95.

Rad RC Racing Products Speedometer for Traxxas Maxx

Want to know how fast your vehicle really goes? If you have a Traxxas Maxx, this device from Rad RC will tell you with indisputable electronic accuracy. The speedometer is a slightly modified Avocet bicycle computer; it uses a sensor to detect a magnet that is affixed to one of the Maxx's wheels. The computer measures the interval between each pass of the magnet and then uses the wheel's circumference (input by you) to determine speed. After a run, the computer saves and displays the maximum speed attained with 1/10mph accuracy. Odometer and trip-meter functions are also included and could be used to measure fuel consumption or to help schedule maintenance.

Since the computer and sensor were designed for a bicycle, installing the parts in a Maxx is a glue-and-zip-tie affair. It isn't hard, but if you crave that factory-installed look, you'll be disappointed. Once installed and programmed, the system works flawlessly and delivers accurate readings. Two tips: if your vehicle is fast enough to "grow" its tires at top speed, compensate by increasing the circumference number that you program into the computer. And remember to reset the maximum speed after each run; if you don't, the next run won't register (unless it tops the previous max speed).



THE VERDICT

For about \$30, you can settle the how-fast-is-it question forever. The Maxx speedo is also a great tuning device, and with a little creativity, it could be installed in other vehicles.

Rad RC Racing Products
Maxx speedometer—part
no. 41, \$29.95.

OFNA Aluminum servo arms

High-torque servos need stiff arms to transmit their yanking power. Some heavy-duty plastic varieties are up to the task, but it's tough to beat the stiffness and sex appeal of OFNA's anodized-aluminum units. The arms are offered in purple, red and blue and in "L," double-ended and single-ended configurations to suit all steering and throttle applications. To trim costs and reduce part



numbers, the arms are "universal" and rely on a press-in sleeve to match the servo in question. Three sleeves are included to fit all brands, including Hitec.

Installation on the servo is easy, but completing the linkage setup may require drilling or tapping, depending on the hardware being used. The provided holes can be tapped for 4-40 threads or enlarged to suit other sizes. The "L" and double-ended arms have a larger, 3mm hole in one end.

THE VERDICT

Excellent anodized finish and universal fit are pluses, but installation may be a hassle, depending on your application's needs.

OFNA aluminum servo arms—various part numbers; \$5.95 (single-ended), \$6.95 ("L," double-ended).

SOURCE GUIDE

BOLINK/RACETECH

420 Hosea Rd., Lawrenceville, GA 30045;
(770) 963-0252; www.bolink.com.

RAD RC RACING PRODUCTS

309 Dorsey Ln., Bayville, NJ 08721;
(732) 269-5628; www.radrc.com

OFNA RACING

22692 Granite Way, Ste. B, Laguna Hills, CA 92653;
(949) 586-2910; www.ofna.com.

Airbrushing 101

Welcome to Airbrushing 101; today, we'll cover the basics. If you've been successful with spray cans, you'll find that using an airbrush can make your life much easier. Now, I don't expect you to ditch your spray cans altogether, as there's no easier way to fill in broad areas with color; but the drawback of canned color is the lack of a precise spray pattern for detail work. Cans deliver a full-pressure blast of paint, and this means you have to take extra time and care when you mask the areas that you don't want to get paint on; imagine trying to paint your bedroom with a Super Soaker. The more paint flies around, the greater the chance of making mistakes in your paint job. Next to body prep, paint control is the most important element in creating a good-looking body, and using an airbrush allows you to regulate the flow of air and paint precisely. Let me introduce you to some of the tools that I use regularly and some basic techniques, too.

ON THE AIR

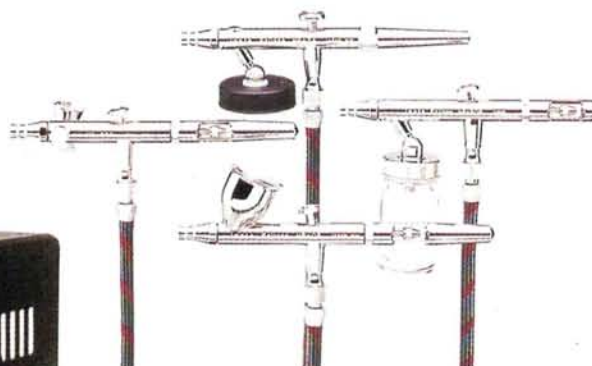
If you're going to airbrush, you'll need an air supply that has sufficient pressure to draw paint to the airbrush's nozzle and atomize the paint as it passes through. The two most popular air sources are disposable propellant cans and air compressors. Propellant cans are fine for getting started; they cost about 10 bucks, and they're great for doing fine detail work. On the downside, they tend to freeze up during extended use, and this causes a temporary reduction in pressure (placing the can upright in lukewarm water will minimize the problem). Plus, they're expensive; those \$10 cans of air add up quickly. In the not-so-long run, an air compressor is definitely the way to go, even if you never venture beyond single-color bodies. A compressor is always ready, and its regulator maintains a constant air pressure while you're painting. Compressors start at about \$100, but before you cringe, remember: with an added air-nozzle attachment, they also work wonders when used to clean your chassis. Here at *RC Car Action*, I use the Iwata Power Jet 900, which is part of the Studio Series. Unlike compressors that are built for mechanical work (which operate just fine, but are loud), the Power Jet hums as quietly as a new refrigerator, even under full power.

AIRBRUSH TYPES

When you go to the hobby shop or art store, you'll see that there are two types of airbrush: internal- and external-mix. An internal-mix airbrush is ideal for RC bodies because it combines air and paint inside the brush and delivers a very fine spray. I've experimented with external-mix brushes, and they're OK for really thin paints and single-color applications, but they don't work as well for color blends on clear bodies.



Creating a battle-scarred look is easy to do with the control of an airbrush.



This is Iwata's Eclipse line of airbrushes; they're ideal for general purpose and fine detail. Left: here at the magazine, I use Iwata's Power Jet compressor. It's portable and no louder than your refrigerator.

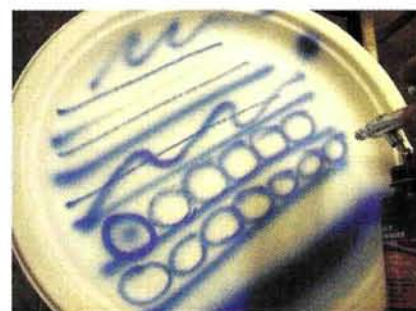


Airbrushes are further differentiated by their "action"—single or dual. If you enjoy the push-button simplicity of a spray can, you'll immediately take to a single-action airbrush. The term "single action" means that only airflow is affected when you press the trigger; paint flow is constant. This allows you to set the paint flow ahead of time

so all you have to do is concentrate on aiming the airbrush. The flow is metered internally by an adjustable needle valve that enables you to paint a fine line, fan out across a large area, or anything in between. I keep a stack of paper plates on my workbench for test-painting before I work on the body so I know that the output is correct. The brush feels the same as your familiar old can but with increased predictability and precision.

Dual-action brushes such as my Iwata HP-CS allow you to use the trigger to simultaneously control the flow of paint and air, and this is their greatest advantage over single-action brushes. As with the single-action brush, pushing the trigger downward regulates airflow, and pulling back on the trigger increases the flow of paint. A single-action airbrush is able to create the same patterns and densities as a dual-action, but to do so, you need to stop painting and readjust the needle settings. It's a little tricky at first, but like anything else,

I begin each session with a few simple painting exercises to loosen up and check the output of the brush.



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BODY SHOP

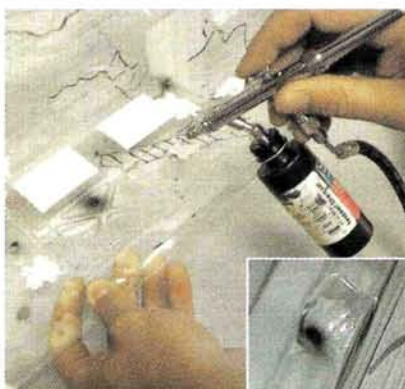
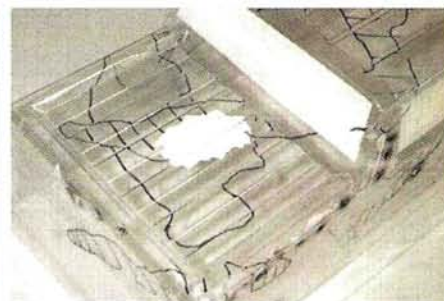
it becomes very natural with a little practice. I warm up with some exercises to check the brush's output before I hit the body with even a drop of paint. If the paint spatters, I thin it slightly (water works fine for FasKolor), or I decrease the air pressure if it's flowing too fast. Once I feel relaxed, it's time to lay down some color.

Now that you know the basics, let's take a

look at the two types of airbrush in action and how to use them to paint an RC body—in this case, a Pro-Line Humvee. My objective was to create a military paint scheme that had a war-weary look to it. If you've ever envisioned yourself as a war hero driving while under enemy fire, you'll be totally into this one, and you'll learn how to do a reverse camo job.

STEP 1

I randomly applied some heat to the body's exterior to create the illusion of bullet indentations, and I scrawled a basic camo outline to follow.



STEP 2

To simulate bullet damage, I hit each of the impressions from the inside with Faspearl Charcoal. Parma makes this Quick Cap conversion for its FasKolor bottles that adapts the bottle for use with the Iwata HP-SA brush. I then covered a few of the holes with a jagged piece of masking tape and added a few radiating "cracks" with Parma's fine-point body marker. If you really want to get carried away, you can add the illusion of circular powder burns, too.

This is the single-action Iwata HP-SA equipped with Parma's Quick Cap conversion for FasKolor bottles.



STEP 3

Widening the spray pattern, I randomly laid down some Fasbeige lines to begin the camouflage scheme. You don't want to start with black; it will make the camo look too glossy.



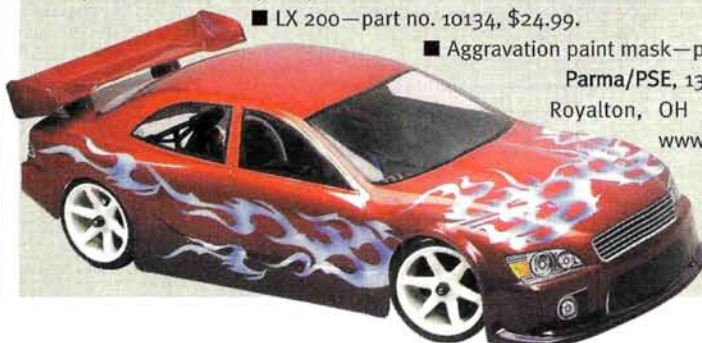
NEW IN THE SHOP

Parma has a fresh-looking change of pace for on-road enthusiasts. This is its 190mm LX 200 body, which is based strongly on the IS-series Lexus touring sedan. The flame treatment is part of Parma's new Aggravation Design vinyl paint mask. Both the body and the masking should be at your favorite hobby shop now.

■ LX 200—part no. 10134, \$24.99.

■ Aggravation paint mask—part no. 10823, \$5.49.

Parma/PSE, 13927 Progress Pkwy., North Royalton, OH 44133; (440) 237-6333; www.parmapse.com.





STEP 4

Olive—a blend of three parts green, two parts yellow and one part black—goes on next in larger random blobs, opposite to the direction of the first color. I use low pressure to minimize overspray.



STEP 5

The final color is black, sprayed on the unpainted sections.



STEP 6

The previously taped-off gun holes are back-coated with silver to give the illusion of exposed sheet metal. Instead of cutting smooth-edged cooling holes in the body, I created "shattered" windows using a few accents of white paint and a jagged cut made with Lexan scissors. Our battle-worn Pro-Line Humvee sure looks the part of a war-weary military machine. If you want to dull the gloss

of the body, use some steel wool to soften the exterior's sheen.

Once you've mastered control of the airbrush, you can get as enthusiastic as you like. It also allows you to spray the newer, odorless, water-based colors that are made for RC bodies; the colors are great, and if you do make a mistake,

you can wash off the fresh paint with soap and warm water and start over.

Airbrushing makes RC even more enjoyable. You'll take more pride in your paint jobs, and you'll have mastered a hobby within a hobby. ■



Richard Muise of Motion Graphics has contributed his painting talent to this magazine for many years, and this Neo Alfa Romeo is typical of his work. The checkerboard pattern was first brushed onto the body and then backed up with a brush-coat of white. Richard masked off the light colored areas of the body, applied Fasescent Purple up to the center of the hood and roofline, then blended in Fasescent Candy Red. He removed the masking from the body and then air-

brushed red along the top, gradu-

ally changing to the orange on the bottom and the rear spoiler.

Motion Graphics, 2645

Robert Arthur Dr., Westminster,
MD 21158; (410) 848-0008;
www.motiongraphicsweb.com.



Do you have a sharp, uncluttered photo of your best paintwork? Send it in! Explain the types of paint, products and techniques you used to finish it. Be sure to include your full name and address and your email address if you're online. For information about sending electronic images, check out www.caraction.com. Send print or slide photographs to "Body Shop," RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

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Tearin' it up with the Ripper

Since its release so many years ago, the Tamiya Clod Buster has benefited from numerous aftermarket chassis and suspension kits that raise its performance to levels its original bathtub-and-pogo-stick parts could never have matched. While any aftermarket chassis kit will substantially improve the Clod, the newest design from Thunder Tech Racing is what many are touting as the best handling mod-Clod conversion to date. Based on a proven, one-off homebuilt design that cleaned up at the NRCTPA Worlds, Thunder Tech's Ripper is a refined production truck that may be the new standard for straight-axle, big-truck performance. I built one to find out.

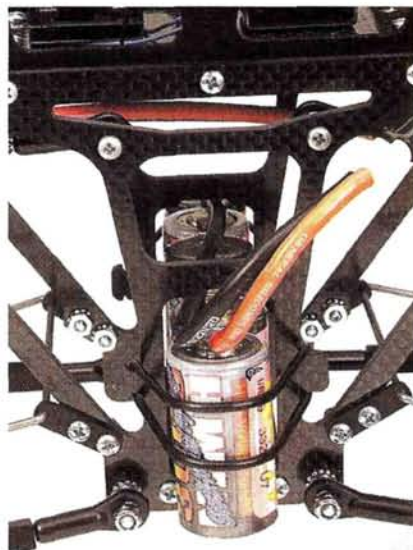
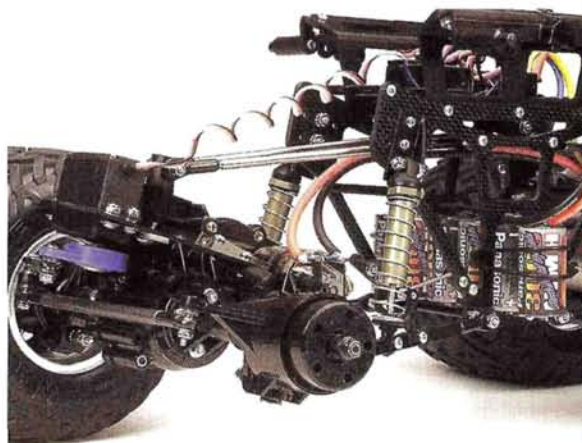
• **Chassis.** Like Thunder Tech's other chassis kit, the Centurion, the Ripper's halves are cut out of carbon-fiber plate. To keep weight to a minimum, material has been removed from low-stress areas, and this gives the chassis a skeletal, tube-frame look. Eight, black-anodized aluminum cross-members connect the two plates. The battery pack sits low in the chassis and is held in place with two rubber O-rings, and that makes installing and removing it easy. As you can see in the photos, the pack "stands up" on its side in the chassis, and a 6- or 7-cell pack can be fitted.

• **Suspension.** The Ripper's innovative 4-link suspension system features upper links made out of carbon-fiber composite rod (our early test sample has titanium upper links). The inboard ends of the upper links are mounted very high on the chassis, and the outboard ends are mounted on the top of the gearboxes on an aluminum mount that replaces the original Clod Buster servo-saver. When the kit has been fully assembled, the upper links must be adjusted to center the gearbox because the hole for the original servo-saver is slightly off-center. The lower links are CNC-machined out of aluminum billet and serve double

Continued on page 207

The batteries are mounted as low on the chassis as they can go and across the chassis instead of in the usual lengthwise position. They are held in place with rubber O-rings and can be removed very easily.

Here is a look at the front suspension. The upper links are attached to the middle of the gearbox, and the lower shock mounts/links are attached to the outside of the gearbox at the end of the axle tubes. The entire gearbox is pitched to increase front caster on the truck.



SETUP

THUNDER TECH RACING

- Ripper chassis and suspension kit—\$280.

FUTABA

- S9250 servo—\$139.99.

TEAM ASSOCIATED

- Rear shock set (1.32 in. racing)—6431, \$30/pair.
- 20WT silicone shock oil—5421, \$3.50/2 oz.
- Silver rear racing spring—6478, \$2.50/pair.

LRP

- Quantum Pro Reverse ESC—8430, \$158.95.
- Phaser receiver—8401, \$74.95.

REEDY

- TI modified 14 double (2 required)—376, \$54.95.
- R3K stock metal-hydrate 3000 cells—623SMH, \$95.

PARMA

- Ford F-150, 13-in.-wheelbase monster-truck body—10188, \$24.99.

IMEX

- Clod Baja tread tires—7584, \$30/pair.

SPECS

- Weight (RTR) 124.6 oz. (3,533g)
- Suspension travel 2.75 in.
- Single-wheel travel 8 in.
- Ground clearance 4.25 in.
- Wheelbase 13.25 in.

New, long-wheelbase F-150 body from Parma!

Parma, working with Thunder Tech Racing, developed an extended body for all the long-wheelbase monster truckers out there. Loosely based on the popular Parma Bigfoot body (no. 10199), the new, longer version looks very much like the real thing and has a 13-inch wheelbase. In addition to adding 3 inches to the wheelbase, Parma has done away with the front-hood bug shield, the front visor, the rear cab fairing and the rear taillight ribs. The Parma extended body also fits Traxxas Maxx trucks.

Part no.—10188; \$24.99.



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Testing the Ripper

I have seen Clods with Ripper-style chassis run well at NRCTPA events, and I was looking forward to squeezing the trigger on my own truck. Like the similar designs I had seen before, the Ripper's main chassis lurches back and forth when accelerating and braking, but the wheels stay planted at all times. For NRCTPA action, in which the challenge is to keep to a tight course and to climb over crushed cars (which isn't all that challenging), the Ripper is more than capable. I was much more interested to see how the Ripper would handle the real-world terrain on which 99.9 percent of us drive. Even over the most rutted, rocky and root-ridden trails, the Ripper kept its Imex tires in close contact with terra firma. The suspension action was impressive for any vehicle, but when a straight-axle monster truck delivers that kind of suspension articulation, it's downright amazing. After giving the Ripper a workout off-road, I headed to the pavement to see how it would cope with high-speed turning. It wasn't easy to flip the Ripper because of its seemingly limitless suspension travel. Cutting the wheel hard at full throttle caused the inside front wheel to lift about 7 inches, and that gave me plenty of time to correct the steering and prevent the Ripper from going over. While I was hitting the street, I sent the Ripper sailing over some big curbs. It took the hits in its stride and soaked up the landings without rebounding. I intentionally hit the curb at bad angles, and the Ripper coped without tipping every time.

The Ripper has to be the best aftermarket Clod suspension and chassis kit that I have ever tested. It looks great, handles well, crawls over rocks as if they are nothing, is highly adjustable and very light. It may have been built for NRCTPA competition, but the Ripper's real appeal lies in its incredible capabilities in the "backyard-bashing" mode that we monster-truck guys all enjoy so much.



OFNA Servo-Bar Plates

OFNA's servo-bar plates are installed on top of the servo-mounting ears and held in place with the servo-mounting screws. They distribute the pressure of the screws more evenly across the mounting ears to prevent them from cracking. Nothing is tougher on a steering servo than a monster truck, so consider these widgets to be cheap insurance. OFNA servo-bar plates (bag of 10)—10377, \$5.95.



XTM Racing Maxx Gear

Here are a few highlights; XTM offers many more parts to go with the items shown.

The red steering arms are CNC-machined out of high-quality aluminum billet. The arms and connecting bar have zero flex for more precise steering.

XTM's beefy multi-piece shock towers come with the main tower, four threaded-aluminum shock standoffs, long setscrews and body-post screws. The wheels are CNC-machined out of a solid chunk of aluminum billet and have a polished finish. Each rim has two holes already drilled in it to let air escape from the tire to avoid developing flat spots. Axle drive pins—instead of the drive hexes used on most wheels—spin the wheels.

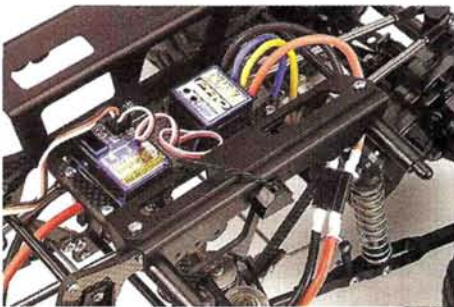
Steering-arm set—233191, \$19.99.

Red aluminum rear tower/mount with posts—233190, \$17.99.

Aluminum spoked wheels—233180, \$49.99.

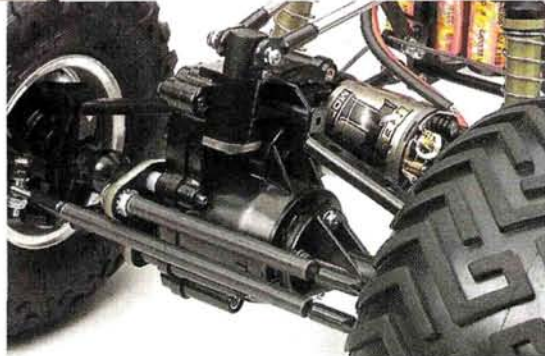


duty as mounting locations for the shocks and swaybars. The shocks are mounted as closely as possible to the chassis centerline to give the truck lots of suspension travel without using cantilevers. Fifteen shock-mounting positions allow you to fine-tune the suspension to your liking. Front and rear wire swaybars reduce body roll and are attached to the chassis with small aluminum brackets and short links.



Above: the radio tray is mounted high on the chassis between the two frame halves, and it allows you to fit some rather large components. I used an LRP Quantum Pro reversing ESC and a Phaser receiver to keep weight down.

Right: the rear steering is locked out with the included Thunder Tech Racing steering-lockout kit. It includes the upper and lower steering links and a piece of carbon fiber that's used to mount the upper link on the rear gearbox. Those tires aren't going anywhere!



• **Other goodies.** I mounted the LRP Quantum ESC and receiver with double-sided tape high in the chassis on a small carbon-fiber plate that is attached to two cross-members at the top of the frame. I secured the steering servo to a large aluminum servo-mounting plate that's attached to the front gearbox. I use a Futaba S9250 servo to steer my truck. The kit also includes lightweight carbon-fiber links to connect the servo to the wheels. Rear steering is locked out using the included steering-lockout kit. Instead of the vertical body mounts you'll find on most cars and trucks, horizontal mounts hold the body on the chassis. Stamped-aluminum brackets attach the mounts to the chassis. Four mounting positions for each body mount accommodate a variety of body styles. I chose a new Parma F-150 monster-truck body, and a set of lightweight, Imex Baja Tread monster-truck tires complete my ride.

SHOP TALK

Q I have a DuraTrax MT Pro. Is it bad to run your engine without a muffler? Some people say it's OK, and others say it really damages your engine because there isn't any backpressure. I love the sound without the muffler, but I don't want to ruin my engine. Gary Whitt, Milford, CT

If you have any problems or questions about trucks, or if there is something you would like to see in "4x4," email me at kevinh@alrge.com or send your letters to "4x4"

RC Car Action
100 East Ridge
Ridgefield, CT 06877-4606 USA.

A Good question, Gary. On any nitro engine, it is very important to have a muffler or a tuned pipe. The exhaust system does three things: it provides the engine with backpressure; it pressurizes the fuel system; and it reduces engine noise. An engine needs backpressure to prevent unburned fuel mixture from exiting the engine's combustion chamber through the exhaust port before it can be ignited. Fuel pressure is also important. Although your engine will run without the fuel system being pressurized, it will not run its best. The pressure in the tank ensures that the engine gets the proper amount of fuel at all times. If there is no pressure in the tank, your engine will lean out more and more as the tank empties. Noise may be the most important consideration; most towns restrict noise levels, but even if yours doesn't, it just isn't good for your hearing—or for the neighborhood's collective sanity—to blast your MT around with the RC equivalent of "open pipes." ■

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Chris's BACK LOT

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o *R/C Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. My email address is: chris@airage.com.

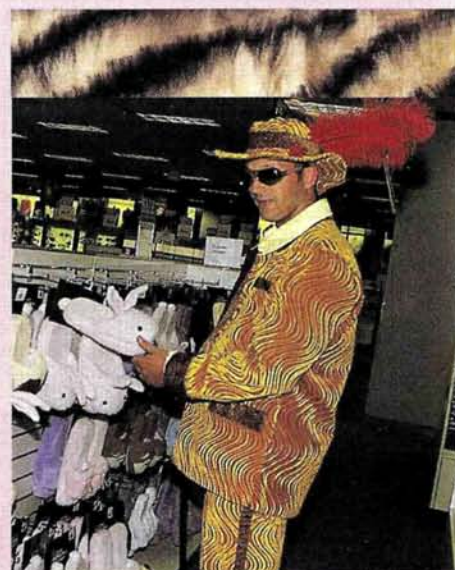
BY CHRIS CHIANELLI

ANOTHER DAY AT "WORK"

You would think that any mission to a costume shop for the sole purpose of acting like bozos in a photo shoot would include yours truly, but this time, only my car was required. My beloved Excalibur has been derided as suitable transportation for Phyllis Diller and a Chitty-Chitty-Bang-Bang clone and misidentified as a VW-powered kit car on numerous occasions (and as a "Duesenberg" by one particularly excitable fogey), but I never realized it was the ideal ride for four Velvet Jones-attired goofs!



Aaaawwww yeeeeeaaahhhh Are these boys the epitome of velveteen cool or not? OK—not. Hey, Pete; how did you like driving the Excalibur? "It's like steering a toboggan from the back seat"



Place we were thrown out of, number one:
Kohl's department store.
Derek: "These bunny slippers are bad. Where's the matching jacket?"
Store manager: "You need to leave now."

Place we weren't thrown out of: Blockbuster.

Blockbuster guy: "We don't rent adult videos."

Pete: "Did I say I wanted one?"

We just want to take some pictures in here. Is that OK?"
Blockbuster guy: "Sure. And if you're wondering, 'Shaft' is in the 'Action' section."



Place we were thrown out of, number two: Stop & Shop.
Pete: "Is it OK if we take some pictures in your store?"
Store manager: "No."
Naturally, we took shots while we were asking whether it was OK.

Who's the skinny kid whose RC machines get all the chicks?
GREG! Right on.

